AMERICAN AGRICULTURIST

FOR THE

FARM · GARDEN · & · HOUSEHOLD

"AGRICULTURE IS THE MOST HEALTHFUL, MOST USEFUL, AND MOST NOBLE EMPLOYMENT OF MAN."—WASHINGTON.

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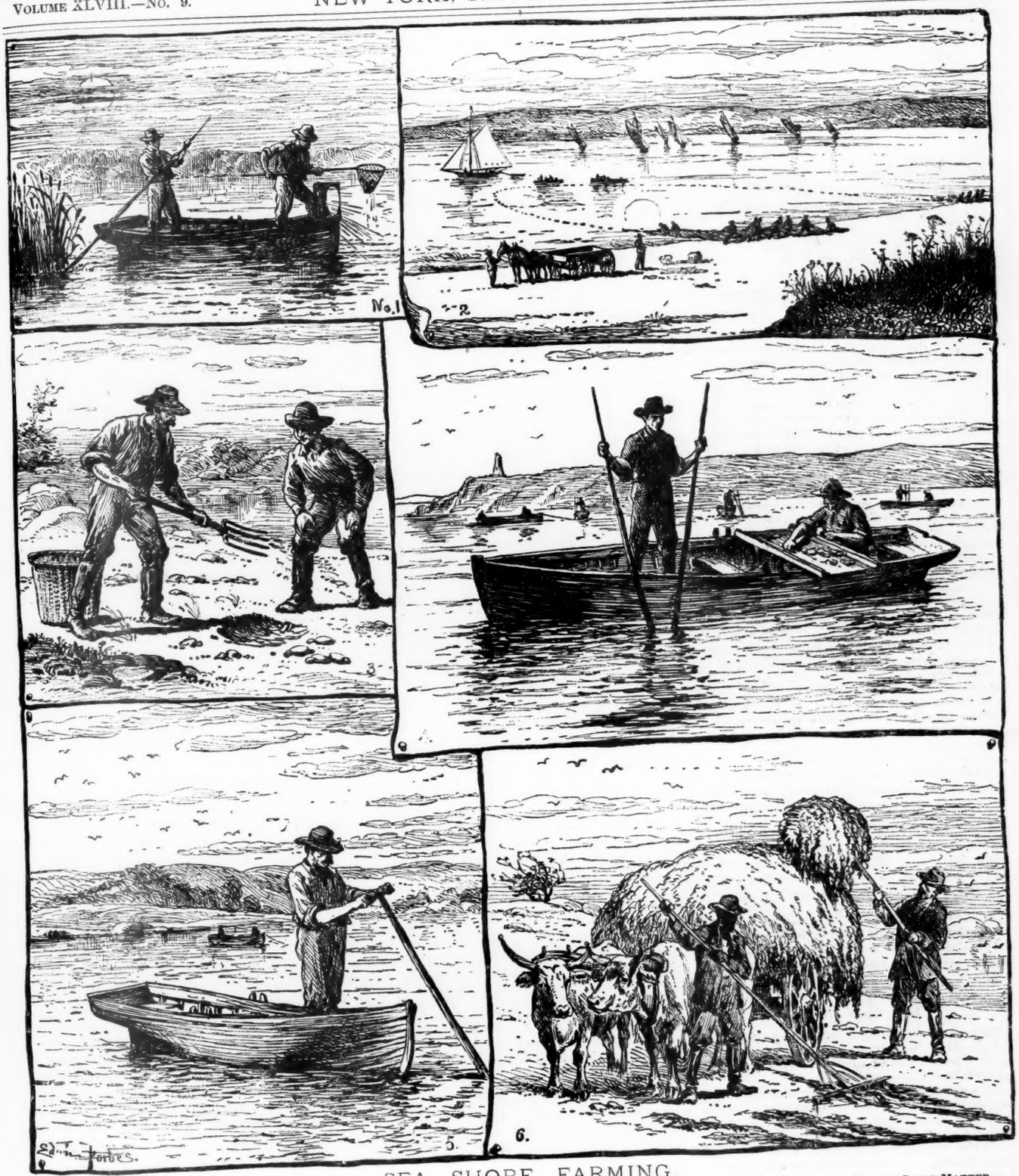

SEA SHORE FARMING.

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September.

Sweet is the voice that calls
From bubbling waterfalls
In meadows where the downy seeds are flying;
And soft the breezes blow
And eddying come and go
In faded gardens where the rose is dying.
GEORGE ARNOLD.

FARM · AND · GARDEN · WORK

SEPTEMBER, 1889.

In grain-growing countries such leading points as early or late sowing are far from being settled. While the majority of the best farmers agree in sowing their grain early, there are others who find, or think they find, enough benefit from sowing as late as their fathers did in a year when the weather was favorable, and are very loud in their assertions of "I told you so." However farmers may differ as to the time of sowing their grain, there are some points on which all will agree—the superiority of drilling in the seed over sowing broadcast, and the importance of thoroughly preparing the soil. On some newly-opened Western farms the visitor will be surprised to see drills of the most approved patterns. The sensible farmer knows that it is poor economy in buying farm machinery to purchase any but the best. If one would be convinced of the superiority of drilled over broadcast seed, let him visit a field seeded in each way soon after the work is done. In the latter case some of the seed is buried so deeply that it will be late in coming, if it sprouts at all, while in other parts of the same field a portion of the seed is exposed to the drying influence of the winds, the attack of birds and other enemies. So important is the use of a drill that it is not uncommon for farmers to form clubs for the joint purchase of them and other farming machines. Where there is a public spirited and forehanded farmer in the neighborhood, he can make a good investment of his funds by purchasing such machines and letting them to his neighbors at a fair rate. If machines are owned by individuals they will be more likely to be kept in good order than when owned by clubs.

Root Crops grow famously in warm days and cool nights, and so also do the weeds. Keep the cultivator or other weeding implements at work as long as the leaves will allow. Pull up large weeds that appear in the rows. Thinning may often still be done to advantage.

Fodder Crops.—Some quick-growing crops, like Hungarian millet, may help piece out a short hay crop. Use some quick-acting fertilizer. If in danger of early frosts, cut the fodder corn and cure rapidly.

Live Stock Notes.

With all animals that are to be fattened the feeding should begin early, while the pasturage is still good. Flesh is laid on more rapidly now than in cold weather.

Cows should be dried off in time to go dry from one to two months before coming in. Jerseys especially are difficult to dry off. Many of them, in spite of all efforts, keep up the flow of milk until the very day of calving. Corn meal and other heating food should be withheld from cows for several weeks before calving, for fear of milk fever.

Ewes have a period of about one hundred and fifty days. If early lambs are desired, preparations should be made accordingly. A cross with Southdowns, Hampshire, or Shropshire ram with a Merino ewe is preferable to one with Cotswold or other long-wooled ram. Though the latter gives a much larger lamb, it is inferior in quality of flesh.

Orchard and Fruit Garden.

The promise for late fruits is abundant. As village and larger markets become more abundant, the earlier apples and other perishable fruits have been largely planted, and the markets are already glutted with them. It is a problem to know how to dispose of these fruits. Already the inventors have produced several "evaporators" and "fruit-dryers" of a size that will allow perishable early apples and other fruits to be converted into a form available for common use by employing the unskilled labor of the family.

Grapes, at present, are marketed in immense quantities, in packages of from five to ten pounds; the style varying greatly in the different markets. The next move will be improvement in quality. Grape culture has a great future; not only in the way of wine-making and raisins, but in grapes—the fruit. The raising of European grapes in Florida and other Southern States, for shipping to Northern markets, is in a promising stage of experiment.

Strawberries.—The early part of September is a favorable season for planting new strawberry beds, and wherever the ground can be put in proper condition it is far better to plant now than to defer this work until next spring. If good potted plants can be procured at reasonable prices, these are preferable for the family fruit garden, as failure is hardly possible if ordinary care be given them; but even with ordinary ground layers, there should be but little loss of plants at this season. When only a small bed is required, the plants may be set out in rows, two feet apart and twelve inches in the rows, but on farms where there is plenty of ground available, it will be found more satisfactory to grow strawberries in matted rows. Under this system the plants are set in rows four or five feet apart, so that the principal part of cultivation can be done with plow and cultivator. The plants should be twelve inches apart in the rows, and the runners allowed to spread on either side so that they will form solid beds three or four feet wide. Although this plan does not give as large berries as the hill system, it requires less labor, and yields an abundance of berries.

Kitchen and Market Garden.

This is, through the greater portion of the country, the month of abundant harvests, whether the produce is marketed or consumed at home. Where there is plenty of sweet corn and other favorite vegetables, there will be less demand for meats.

Asparagus.—Do not allow the tops to be cut for decorative purposes to any great extent; as long as they remain green they are necessary to nourish next season's crop. Apply coarse manure to the bed whenever it can be spared, but be sure to get it on before winter. Asparagus, considering the constant demand for it in Northern cities, and the ease with which it is transported, is a most profitable crop for Southern farmers to ship to Northern cities. It is astonishing that so few have availed themselves of the prospective profit it offers. As it requires four or five years after the seed has been sown before a full crop may be cut, many cannot afford to wait so long for returns upon their investment. It is only persons who own the land they cultivate who will be likely to engage in asparagus culture. To those favorably situated it offers a most promising field.

Greens.—Sow kale or German greens and spinach; when large enough thin, and allow the rest to remain until spring. In cold localities protect with straw or litter.

Plants to Winter Over.—In raising plants to prick out in cold frames to winter until spring, our most successful gardeners make two sowings—one on the 15th and the other on the 25th of September, trusting that sowing at one or the other of these dates will give plants of the right size. The pricking out is done in November.

Celery should be making rapid growth by giving it clean culture. If celery is wanted at this season a portion of the most advanced rows may be earthed up, but the main supply should not be earthed up before the approach of cold weather.

Melons.—Gather those too late to ripen, and use for mangoes or stuffed pickles. Place a shingle or wisp of straw under them to hasten their ripening.

Tomatoes.—The long green worm will continue to work as long as there is anything for it to eat. Pick off and kill. It can neither bite nor sting. If green tomatoes are desired for pickles secure them before frost. If many partly-ripened fruits are likely to be caught by the frost, gather the most promising, and place in a greenhouse or in a sunny window.

Flower Garden and Lawn.

The number of flowers at this season of the year is small, and the temptation to relax in the labor of keeping the garden in order is strong. But a well-kept place, be the flowers few or none, will be more attractive than when there are many flowers and all their surroundings marked by carelessness and neglect.

Lawns.—Some of our winters have but little snow, and in such seasons the well-kept lawn, with a judicious display of evergreens, will gratify the eye of the passer-by. One of the first essentials to a lawn is grass. Many appear to think otherwise, by the way they remove the grass to form beds in the shape of stars, triangles, and other tasteless designs. The cool nights which now follow the warm days are favorable to the growth of grass. At this time we wish no other promoter than an abundant growth of roots, in order that the grass may survive the winter without injury. With this end in view, the grass should not be cut too closely.

Bulbs.—Spring-flowering bulbs, such as tulips, hyacinths, narcissus, crocus, and several others, should be planted as soon as they can be obtained. If merely effects of color are desired, and names are not important, "assorted" bulbs may be obtained at a very low rate of wholesale. As a general rough rule for out-door bulbs, put them as far below the surface of the soil as the thickness of the bulb, placing them as far apart as the bulbs are wide. For those to bloom in the greenhouse or window, use light, rich soil; if not open, add an abundance of sand. See that the pots are well drained. Invert a small flower-pot over the bulb, water, place the pots in the cellar, in a pit, or under a shed, and cover well with coal ashes.

Gladiolus.—In taking up choice named varieties, carefully save the bulblets of the size of peas or upwards. They should be dried off and placed in paper bags—large and small together—with labels, and stored in a dry room, free from frost.

Mice are very fond of some bulbs, and this should be kept in mind in storing for winter.

Leaves should be raked up or swept from the lawn and paths and drives, etc., not only for the negligent air they impart if allowed to remain, but for the sake of the leaves themselves. For the same reason—but especially for the leaves—rake them up from the highway. If likely to need frames early in the spring, fill them with leaves and cover with board shutters. The soil within will be kept from freezing.

Greenhouse and Window Plants.

If the plant-houses, of whatever kind, are not ready to receive the plants, it will not be for the lack of sufficient warning. Nearly every month since the plants were taken out our readers have been cautioned to make all needed repairs on house and heating apparatus. When such work is done early, and the mechanics are not hurried, the work is more likely to be satisfactory. Besides, when one knows that all is ready, and that the plants can be rushed into a place of safety upon the first warning, there is a feeling of security, not possible when the repairs are still to be done. As mentioned with regard to the flower garden, the few tender things succumb to the first frost, while others are not affected by the early frosts, and so on to different degrees. As the season approaches when the most tender must be placed under cover, it is well to arrange the plants, and place those that must be taken in before the first appearance of frost, so that all upon the place will understand what is to be done in an emergency. Any plants that were planted out and are to be potted should have this done early. Make cuttings from those that have grown too large to repot them. Replenish and put in order window-boxes, hanging-baskets, ferneries and the like before cold weather sets in, that the plants may become established. Window-boxes may be filled with Holland bulbs, and if properly arranged produce a satisfactory effect. As when potted, the bulbs are to be kept in a cool, dark place until they have become well rooted.

ALONG THE SHORE.

Wherever the ocean waves break upon the shore there exists a large class of industries pursued by hardy coast dwellers. A few of these are illustrated on our first page. The small view, Fig. 1, shows the method of catching crabs at night. In the bow of a small boat a lantern is fastened, the light of which attracts the ever-hungry crustaceans from the oozy depths. As one of them comes swimming upward near the surface the man with a dip-net gently insinuates it beneath, and the next moment the astonished crab is a prisoner. Crabs are boiled and eaten fresh, or prepared by a peculiar process and canned. Fig. 2 shows a method of obtaining sea-food on a much more extensive scale. It is called "drawing a seine." The seine or drag-net is long and narrow, sometimes half a mile in length, and only a few feet wide. Either edge is securely fastened to a rope, that on one side being heavily weighted with lead, to make it sink, and to the other, called the "cork-line," are attached at frequent intervals, pieces of cork or light wood. When a haul is to be made the seine is gathered up into a boat, or if very long it rests in two boats, which move close alongside of each other until the offing is reached. Then the boats pull away from each other, "paying out" the seine as they go, and each gradually turning its bow to the shore, which should be a smooth, sandy beach. When both ends reach the shore, the seine is slowly drawn in at one or both ends, together with the fish which have been enclosed within its wide circuit. As the "bight" approaches the beach, there is intense excitement on the part of the fishermen, as to the net results of the haul. Sometimes it may go far toward loading the waiting wagon, and at others it proves to be a "cold-water haul" with no fish. The amphibious-looking men in Fig. 3 are digging soft-shell clams. These toothsome mollusks live imbedded in the soft sand, where they might lie in safety if it were not for their habit of "spouting" or throwing up little jets to the surface, which betray their lurking places. At Fig. 4 is seen one of the methods by which the peaceful and succulent oyster is snatched from its watery bed. The long-handled affair in the hands of the chief operator is a pair of oyster tongs. The oysters are first "planted" in their beds, and lie there until fattened—if not sooner destroyed by star-fish. When fit for market they are lifted in tongs as shown in the picture. The lone fisherman in Fig. 5 is raking for quohogs or hard-shelled clams, which form an important article of diet, especially during the summer months.

Besides the vast amount of human food which is taken from the ocean, it also has growing beneath its waves immense quantities of plant-food, in the shape of so-called sea-weed. Only a comparatively small proportion of this is ever rendered available, yet there is enough to become an important matter to shore farmers. The island of Jersey in the English Channel owes its fertility largely to the regular supply of "kelp" which the farmers gather on the shore. Large amounts are also used by the farmers along the shores of the Atlantic, Long Island Sound and Chesapeake Bay. It is thrown ashore by heavy storms, and after they subside the farmers drive down to the beach with carts, upon which is loaded the rich fertilizer thrown up by waves. At 6 is shown how it is done.

SOWING WINTER WHEAT.

JOSEPH HARRIS.

In this section, Western New York, we sow wheat from the first to the fifteenth of September. Broadcast sowing is almost obsolete. Ninety-nine hundredths of all the wheat sown is drilled in. Quantity of seed sown per acre, from four to six pecks—five pecks being the rule. Our grain drills have fertilizer attachments, and a very large proportion of our farmers drill in with the wheat two hundred pounds of superphosphate per acre. There is much difference of opinion in regard to whether it is better to sow a phosphate containing potash and nitrogen as well as soluble phosphoric acid, or merely a phosphate containing nothing but soluble phosphoric acid. The latter is preferred because, in the first place, it is cheaper, and because, in the second place, many of the farmers say it does just as much good as the higher priced article. Then opponents say the former is the leading motive, and they predict that a phosphate without potash will soon cease to have any effect. There is some truth in this, but as long as the land produces good crops of clover there is no lack of potash. The deficiency of potash will first manifest itself in the failure of the clover.

Our grain drills have also a grass-seed-sower attachment, and our farmers usually sow with the wheat from four to six quarts of timothy seed per acre. Some farmers prefer to wait a week or two and sow the timothy after the wheat is up. In the spring red clover seed is sown broadcast on the wheat at the rate of from four to six quarts per acre, or three to four quarts of Alsike clover. Wheat was formerly our principal cash-producing crop. All the operations of the farm had a direct or indirect bearing on the production of wheat. Western New York, or the Genesee country, is built on wheat, and notwithstanding its low price it is still a favorite crop. It will always be grown here, but we shall no longer make everything bend to His Majesty. We shall put in a few acres, and take more pains to get them in good condition, especially for the succeeding grass and clover crops. It is here where a little extra care in preparing the land for wheat is especially useful. An additional gang-plowing or repeated rolling and harrowing may or may not pay for the wheat, but if it will insure a good catch of grass and clover we shall see and feel the beneficial effect of this better tillage for years.

FAIR-FEATURED FOES OF FARMERS.

DR. BYRON D. HALSTEAD.

It is not the most ugly in appearance that always does the greatest damage. An attractive exterior may be only an allurement to a miserable deception within. The writer was recently riding through a portion of New Jersey. It was one of those rare days in early June when sights and scenes suggest the better side of life. In the wheat fields, now beginning to develop the first brown tinge, which, as the days go by, rapidly change into the more golden hues of maturity, here and there in the standing grain could be seen peeping out from among the bristly heads of wheat the soft purple flowers of the corn cockle (*Lychnis githago, Lam*). This handsome flower certainly adds beauty to the field, and if it were not for the trouble that the cockle seed makes when the wheat is ground into flour there would be no objection to it. As it is, the cockle seed, owing to its size and shape, is not easily separated from the wheat, and when made into flour adds a disagreeable taste as well as bad color to the product. This handsome foe comes to us from Europe, where it is a common pest in the grains. We may be thankful that it is an annual, and only comes from seed each year.

Upon the opposite side of the roadway was a field of old meadow which, from its whiteness, almost reminded one of winter. The grass was thin and in its place, and acting as a robber, grew multitudes of the ox-eye daisy (*Chrysanthemum leucanthemum, L*)—a name long enough to kill any ordinary plant, but this miserable yet handsome weed flourishes as if its botanical name consisted of not more than four letters. Some persons may object to calling the daisy handsome. Of course when one looks beyond the outward appearance and reads in each gay head a story of hard times to the struggling farmer, it is possible to neutralize the beauty with the bitterness which the pest brings. The school girl pulls off the ray flowers repeating, "Love me, love me not," when the old farmer is sure that the daisy is the last flower he would consult upon points of love. While the bright-eyed cockle grows as slender-branched, isolated plants in the grain field, the daisy forms a clump of perhaps a hundred stalks and shuts out all else from the place occupied. The daisy illustrates the truth of the adage that in union there is strength. In other words, the mass of stems of the "stool" with its great area of roots makes an obstacle not easily overcome by the plow, and when half turned under in the furrow it only seems to flourish all the better for its change of base. Seeding abundantly, this weed is not only able to hold its own, but if left to itself will chase out the grasses of an aging and somewhat worn-out meadow, and at last the owner must either take the plague in hand or sell his farm. Some one has said that the last is the only sure method of getting rid of the daisy. While this plant is popular among the stylish of the cities, it is only a pity that the showy white and yellow heads cannot all be gathered for purposes of decoration. A daisy looks better than a rose in some places, but not in a meadow.

Another handsome weed and of a quite different type of beauty from the cockle and the daisy, is the one known by several names, as, for example, "butter and eggs," "toad flax," "snap dragon," "Ranstead weed," etc. Like the daisy, it is a perennial, that is, grows from year to year indefinitely and makes a large root system so that it takes almost entire possession of the soil it occupies. The straight stiff stems bearing many small soft leaves arise from the strong roots and bear near the top a long spike of yellow-orange flowers, which are attractive in both their bright color and peculiar shape. Following each flower is a capsule bearing many seeds.

This plant is so handsome that it was introduced into this country by a Mr. Ranstead, who brought it from Wales and cultivated it for ornament in his grounds in Philadelphia, whence it has spread throughout the country and is now one of the leading pests in many places. Here, then, in the *Linaria vulgaris*, is a clear case of our country being cursed by a plant that was brought here on account of its fine foliage, rich flower clusters and ease of propagation. It is not the only instance where a fine appearance has been the card of introduction of vileness into the society of the useful and good. We are, in conclusion, forced to fall back upon the saying, "Handsome is that handsome does," and with that in mind we are free to discard outside show and consider real merit in making up our opinion. Upon this basis the cockle, daisy and snap dragon are certainly weeds of a very homely type.

THE CONDITIONS FOR LONG KEEPING OF FRUIT.

In what condition can fruit be placed to best preserve its good qualities and retard its decay? There seem to be two distinct active processes in the growth and development of fruit. The first is the growth—the collecting and building up of a compound of comparatively solid structure which is unpalatable and indigestible as an article of food. The second is the ripening process; a kind of organic ferment; a breaking down, softening, dissolving, rendering palatable, easily digested and valuable as food. In this change the volatile oils are generated, giving flavor and character to fruit. The time required in building up fruit preparatory to ripening has not been delegated to man to control to any great extent, whether a variety is to ripen in May, July or September. Yet if man cannot control the time of completed growth, he can, during this period, by good care and cultivation, increase greatly its size and value.

In the second stage of development ripening can be hastened or retarded, and when fully ripe, decay can be delayed. In the second stage fruit should not be left open and exposed to atmospheric changes of temperature or moisture. Flavor is lost by evaporation. If the purpose is to hasten ripening, the fruit should be inclosed in a tight box or barrel, or wrapped in flannel, to prevent evaporation, and left in a warm room of uniform temperature.

The greatest advantage to the fruit-grower will result from checking too early maturity, and from preventing early decay after harvesting. His success demands a place for storage with surroundings favorable for preservation. One condition is conceded by all—that the temperature must be lower than that required for growth. That 32° is too low, seems to be the conclusion of those best qualified to judge. Fruit kept long at that temperature, although apparently unchanged, when removed soon sinks to decay, not apparently from over-ripeness, but from the permanent suspension of all active forces. The process of decay, not that of ripening, takes possession. California shippers of oranges have come to the conclusion that refrigerator cars do not pay; in fact that they have occasioned great loss. It seems that the conditions most favorable for the preservation of fruit without loss in quality would be secured by a store-room having the temperature so low as to check (not wholly destroy) the forces at work in fruit, whether those forces be chemical or organic,—so low that spores would not be active; the air so damp that moisture would not escape, while the temperature and moisture should remain uniform. Apples, as well as potatoes, buried in the ground and so covered as to be protected from heat and frost, come out in the spring as fresh and bright as when buried in the fall.

Grapes, picked and wilted, then buried in stone jars three to four feet below the surface, will come out with stems green and fruit plump and bright. In these two cases the temperature remains more uniform than could result with atmospheric exposure. Cellars having springs in them or streams passing through them are noted for keeping apples and vegetables fresh, even until late the next season. The water acts as a regulator of both temperature and moisture. These methods of storage approach the conditions specified above, and the nearer the approach the better the result.

If these conditions are favorable for the preservation of fruit in all its stages of ripeness, the question arises, How may they be the best and most economically secured? The creameries and milk-rooms now in use in the Western States present the most satisfactory solution of the problem, as in them the above conditions are economically realized in their most perfect form. These rooms are inclosed on the top, bottom and sides with four dead air spaces, with double doors for entrance, and they are made as nearly air-tight as possible. Fresh air is supplied at the bottom through a subterranean passage about twelve rods long and eight to ten feet below the surface of the earth. This passage is two feet wide and one foot high, formed of stone-work. Through it a constant current of air is passing into the room. The temperature of this air is controlled and regulated by that of the earth at the depth of the passage. Moisture is deposited if the temperature is increased, so as to give nearly a uniform amount in the room.

Prof. Arnold is authority for saying that while the extremes of heat and cold in those States vary from 110° above to 40° below, these rooms will not vary in temperature over five degrees during the year, uniformly remaining near 50°. The air is pure, and the room is perfect as a milk-room. Ventilation is perfect, with uniform temperature and moisture.

Such a building need not be expensive. It can be built of coarse lumber, the air spaces sheeted with building paper, while the stone passage can be put down for from five to eight dollars per rod, depending upon the hardness of the soil and the proximity of stone. We have no knowledge that any such appliance has been used for keeping fruits and vegetables, but it seems to present just the conditions necessary for retaining every valuable quality in fruits and in vegetables, and for checking decay.

EARLY AUTUMN IN THE MARKET GARDEN.

JAMES K. REEVE, OHIO.

An unduly early frost in the fall may be hardly less disastrous than an unduly late one in the spring. In the latter case the gardener may be able to protect his plants to some extent by covering them; but when the vines have their full growth, as in the fall, this is hardly possible. Beans are easily hurt and rendered wholly worthless if frost comes before they are matured. After they are ripe and the sap is out of the vines, frost cannot injure them, but protracted wet weather will then do equal damage. Care must consequently be taken to get this crop off the ground as soon as it is sufficiently ripened, but it will not do to harvest it sooner. If frost comes we must stand the consequences, and endeavor to plant a little earlier next year.

If there is but a small area in beans, they may be hand-pulled and left a day or two to dry before being stacked or hauled into the barn. If there is a large area they may be cut with the mowing machine or self-raking reaper, by fitting on a frame covered with burlaps, as is sometimes done in cutting clover seed, and having a man or boy follow with a rake to clear off the vines.

Sweet potatoes should also be harvested before frosts come, if it is possible. Frosts not only kill the vines but injure both the quality and keeping properties of the tubers. If a frost is threatened before they can be dug, the vines may be cut close at the crown of the hill, which will prevent the action of the frost being communicated to the roots. The vines may be cut very rapidly with a sharp hoe; the potatoes may then remain in the ground for some time without injury, if the weather remains dry, but the better plan is to gather and store them as soon as possible.

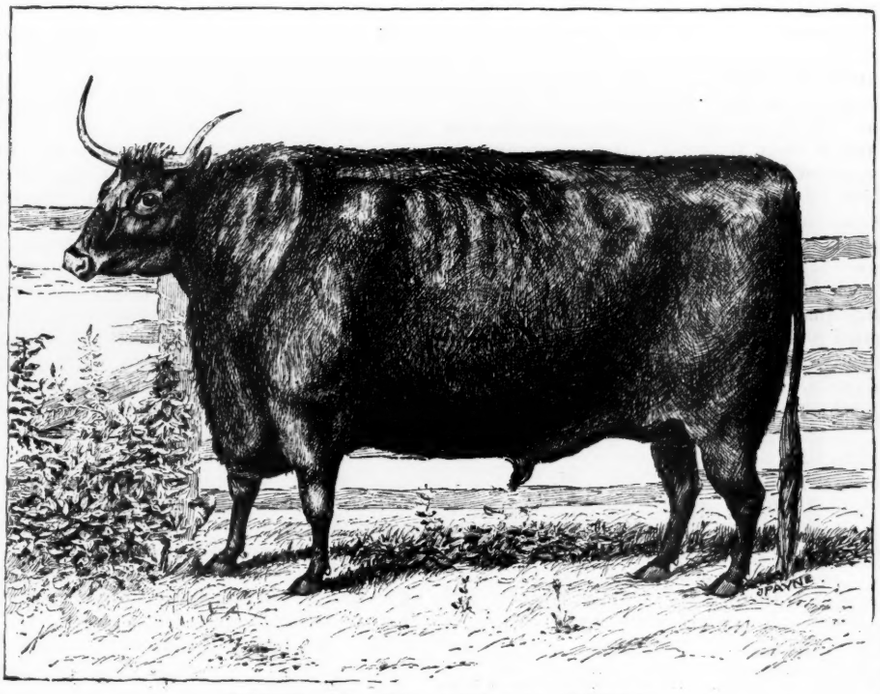
Mature tomato vines, with their green and ripe fruits, are almost as sensitive to frost as are the tender plants in the spring. Frequently a frost ruins the larger portion of the crop before it is sufficiently ripe to gather. A considerable quantity may be saved by picking off the largest fruits and spreading them thinly on the barn floor or in the loft, where they will ripen gradually, or the vines may be pulled with the fruits on them and hung upon poles or the rafters in the barn. Portions of them may be hastened forward as wanted by exposing in the sun, while the smaller may be sorted out and sold for pickling in the green state. The tomato season may thus be lengthened out some two or three weeks, and the better prices obtained for the late stock will repay extra care in saving. Root crops make their most rapid growth now, and such as parsnips, salsify and carrots, which will not be injured by light frosts, should still be cultivated and kept in growing order.

Close of the Honey Season.—At the close of the honey season and especially if the bees have swarmed largely, we often find colonies that are queenless, and all such are a bait for robbers. When they once begin to rob it is a hard matter to stop them. In nearly every case there is some neglect of the bee-keeper, and in most cases it occurs from the colony becoming queenless. While the honey season lasts bees do not seem inclined to rob, but when the honey flow ceases there is danger of robbing if there is opportunity. It is necessary to look after this matter, and supply every deficient colony with a fertile queen. If no queens are present for this purpose, a comb of brood may be inserted from some other colony, and from this they can produce a queen of their own.

THE BLACK CATTLE OF NORTH WALES.

The principality of Wales has two indigenous breeds of black cattle, of which at least one fills an important place in Great Britain, though it is unknown on this side of the Atlantic. The black cattle of Wales were originally all of one breed, and in fact are supposed to descend from the species *Bos primogenius*, which is now represented by the wild white cattle of Chillingham, England, and the so-called Podolian race of the continent. One singular fact that justifies this opinion is that among the black Welsh cattle is seen an occasional white calf, black on the muzzle and inside of the ears, like the cattle of Chillingham.

The original black cattle of Wales were coarse and slow of maturity, but they possessed such hardiness, dairy qualities and special adaptation to their environments that no effort at improvement was made until within a few very recent years. The first herd-book was published in 1874, embracing both the so-called Castle Martin cattle of South Wales and the Anglesea of North Wales. The former are coarse-boned, with flat sides and deficient beef qualities, but good milkers. The Anglesea cattle, or "runts" as they are called, have been so greatly improved that they are now recognized as a distinct breed, with a separate herd-book, of which the first volume was published in 1883. It has now reached its second volume, with records of 72 bulls and 195 females. The improvement in these cattle is the result of careful selection and breeding, to which they have responded rapidly. The large bone, slow growth and light quarters have been bred out, and a fine, blocky animal is the result, like that shown in the accompanying illustration, which is a life-like portrait of a Welsh steer that won the prize breed cup in the Smithfield Club cattle show, London. His weight was 2464 pounds. Fat cows of the same breed have attained weights of 1800 to 2400 pounds. The cows are deep and long-continuing milkers, producing an average yield of from twelve to fourteen quarts daily at the flush. The milk is fairly rich in butter fats. With their extreme hardiness, early maturity, good beef and dairy qualities, the North Welsh cattle are rapidly growing in favor among British breeders and feeders, and seem worthy of attention in this country.



PRIZE BLACK WELSH STEER.

CONTINUOUS WINTER STABLING FOR COWS.

JOHN GOULD, OHIO.

Last winter I practiced the advance idea in dairying, and kept the cows in the stables for 120 days without letting them out, and never before wintered my cows so cheaply and well. Never before did they "come through" looking as fine, and so free from ailment. The barn is very warm, the thermometer never but once going below forty-five degrees above zero, the air pure and fresh, and the stable abundantly supplied with light. A large, covered tank in the stable supplied from a deep, rock well afforded the best and finest of water. The idea that a cow giving milk, needs exercise to keep her in health and vigor, I now think a mistake. No one thinks of driving his fattening hogs or steers around for exercise, and the secretion of milk is a similar process to secreting fat.

I do not confine my cows with stanchions, but chain them in pairs, in half box stalls, giving them plenty of freedom so far as movement is consistent with safety. A good bed under them and plenty to eat before them, has made them perfectly contented, so far as I could see. They showed no inclination to want to go out, and I finally made up my mind there was no necessity for it. They could lie down at their ease, and the neck-chain was long enough to enable them to sleep with their heads on their sides if they wished. To me it was far nearer an ideal way of wintering cows, than to turn them out into stormy or zero weather to make them hardy, or contract constitutional vigor. I am now fully satisfied that it does not pay to attempt to warm barnyards with cows, or to use hay and grain to warm ice-water inside of a cow's hide. The cows were fed silage, bran, and a little clover-hay, and gave summer messes of milk all winter. I have this summer made calculations to provide more silage, put the cows into the stables earlier in the season, and keep them there later in the spring; and if possible feed silage once per day through the balance of the year. Farming to *pay* must be so ordered that the farmer can command 365 days of summer in each twelve months, and silage, a warm barn, and cows in the barn for 165 days at least, will give him that advantage.

VALUE OF COTTON SEED.

DICK NAYLOR, TEXAS.

The real value of our cotton seed crop is not yet fully appreciated by the Southern farmer. It is one of our best and most convenient winter foods for cattle, and is usually fed without any preparation, hulls and all. Small seed-hullers for farm use are now manufactured, and every Southern farm should be supplied with one. The hulls have little or no nutritive value for stock, but the ashes from them, or even the rotted hulls are excellent as fertilizers. They are too bulky and indigestible for the bovine stomach, yet, native Southern cattle devour the entire seed with great relish. This does not prove that it is best to be fed whole, however. The raw kernels, with the hull removed, are much more easily masticated. If dampened and mixed with bran or corn meal, a most enticing and nutritious ration for milch cows would be had. The kernel of the cotton seed is so soft that I do not think it would be profitable labor to cook it. When fed unhulled, however, boiling the seeds softens the hull, and makes them more easily eaten by thoroughly wetting and "laying" the lint that adheres to them. A little salt should be added when boiled. Cattle that have been accustomed to eating raw seed will not readily eat the cooked unless mixed with meal or bran, or with a little shelled corn or other grain. Thus prepared, cotton seed is good hog feed, especially for sows suckling pigs. Dry seed in the hull should never be fed to swine, as the lint seems to accumulate in the stomach gradually until it finally kills them. Sometimes when cotton seed is fed alone to milch cows, it imparts a somewhat unpleasant taste to the milk. Salt tends to prevent this, but if the ration is changed occasionally to carrots, turnips or sweet potatoes twice a week—or better still, mix a few cut-up turnips or sweet potatoes with every feed of seed, no such trouble will occur.

The high manurial value of cotton seed has long been known, and no farmer should sell his seed to the oil mills except in exchange for cotton seed meal, which is nearly as valuable for cattle feed and manure as the entire seed. To sell off the crop of cotton seed at ten cents per bushel, and buy nothing to feed the soil in its place, is a suicidal policy that is ruining many a short-sighted Southern farmer, especially our colored farmers.

Rotation of crops solves the labor problem on the farm and economizes labor, by distributing work through the year.

CHARACTERISTICS OF GOOD AND BAD PASTURE.

J. J. WILLIS, SUPERINTENDENT OF LAWES AND GILBERT'S EXPERIMENTS, ROTHAMSTED, ENGLAND.

In the Rothamsted grass experiments, species belonging to the order of grasses (*Graminece*) have, on the average, made up about 68 per cent of the weight of the herbage on the unmanured plot—that is, in the state of nature—about 62 per cent of that grown by the aid of a purely-mineral or non-nitrogenous manure; 84 per cent with ammonium salts alone, and 88 per cent of the herbage when manured with a mixture of nitrogenous and mineral compounds. Leguminous plants, or clovers, have constituted about 8 per cent of the produce of the unmanured plot, about 23 per cent of that of the plot of land manured with purely-mineral substances, but containing potash salts, a quarter of 1 per cent with ammonium salts alone and less than two-tenths of 1 per cent of the weight of the herbage grown by mixed minerals and nitrogenous manures. Species belonging to the other orders of plants have constituted about 24 per cent of the unmanured produce, 15 per cent of that on the plots supplied with minerals or ammonium salts alone and 11 per cent of the crop on the portion of land manured with a mixture of mineral ingredients and ammonium salts. The struggle for existence which is going on between plant and plant in the mixed herbage of permanent pastures may be illustrated by a comparison between the percentage quantities of a few of the most characteristic plants on three plots of land in the Rothamsted grass experiments.

The land has probably been laid down with grass for some centuries. No fresh seed has been artificially sown within the last fifty years certainly; nor is there record of any seed having been sown since the grass was first laid down, so that the differences in the three plots to which we are about to call attention has been caused entirely by the continuous application year after year of a particular manurial supply to the same portion of land. One plot has received no manure whatever from 1856 up to the present time, the second plot has been supplied with a mixed mineral manure alone, containing a large quantity of potash, and the third is one of the most highly manured plots in the series, receiving a combination of mineral ingredients with an excessive quantity (800 pounds per acre) of ammonium salts.

Table showing the botanical composition of the mixed herbage in permanent meadow-land of three characteristic plots of the Rothamsted grass experiments:

		Without Manure.	Mineral Manure Alone.	Highly Manur'd.
Total number of species	Grasses	17	17	12
	Clovers	4	4	1
	Weeds	28	22	6
Total species		49	43	19
Botanical Name.	**Common Name.**	**Percentage Quantities.**		
Anthoxanthum odoratum	Sweet vernal	5.89	3.22	0.28
Alopecurus pratensis	Meadow foxtail	2.57	0.72	9.54
Agrostis vulgaris	Redtop	10.98	9.14	18.80
Holcus lanatus	Soft woolly grass	6.66	8.29	10.85
Avena elatior	False oat-grass	0.56	1.05	7.65
Avena pubescens	Downy oat-grass	5.28	5.58	0.42
Poa pratensis	Blue grass	0.37	1.55	8.54
Dactylis glomerata	Orchard grass	1.95	3.15	29.96
Festuca ovina	Sheep's fescue	15.96	16.64	1.62
Total percentage of grasses		67.43	61.78	94.96
Trifolium repens	White or Dutch clover	0.57	1.33	.....
Trifolium pratense	Red or broad clover	2.37	3.56	.....
Lotus corniculatus	Bird's-foot trefoil	3.54	0.55	0.01
Lathyrus pratensis	Meadow vetchling	1.73	17.27	.....
Total percentage of clovers		8.20	22.71	0.01
Ranunculus bulbosus	Bulbous crowfoot	3.41	0.55	0.01
Chenopodium denudatum	Earth or pig-nut	2.58	3.53	0.91
Achillea millefolium	Yarrow or milfoil	1.96	2.66	0.38
Rumex acetocella	Sorrel dock	2.37	4.69	3.57
Plantago lanceolata	Ribwort plantain	5.21	0.37	.....
Luzula campestris	Wood rush	2.41	1.18	0.01
Total percentage of weeds		24.37	15.81	5.03

These interesting and important results teach us that *Anthoxanthum odoratum* with its much branched dense root-fibres which form a complete mass close to the surface of the soil only, becomes prominent under conditions which do not induce special luxuriance in its competitors. It yields but a scanty portion of herbage and is not particularly valuable for agricultural purposes, apart from the fact that it serves as a condiment for cattle. It has been recommended to be sown in sheep pastures for the purpose of improving the quality of the mutton.

Alopecurus pratensis, which has deeply penetrating root-growth, with numerous underground stolons, thrives best with high manuring, supplying nitrogen. The great partiality which cattle manifest for it, and the chemical test alike reveal its high nutritive qualities.

Agrostis vulgaris is a very variable tufted grass emitting numerous stems which creep along the surface of the ground, and produce roots and shoots at the nodes. The roots are fine and much branched, frequently descending to a depth of four or five feet, but they also form a mat just beneath the surface. In each of the three plots enumerated, this species has formed a large proportion of the total herbage. But it only becomes very prominent wherever there is a liberal supply of nitrogen, under which condition its tufted habit becomes very conspicuous, but it is beaten by the freer-growing orchard grass, where the manurial conditions are favorable to high maturation, as well as to luxuriance. It affords very early feed in spring, but its power of yielding late keep in autumn is its most remarkable feature. Mr. Martin I. Sutton, in his valuable book on "Permanent and Temporary Pastures," says: "In wet seasons Agrostis will overpower other grasses until its creeping roots become almost as objectionable as couch."

Holcus lanatus is a comparatively shallow rooting grass, reaching its highest percentage with liberal nitrogenous and mineral manure; but it has not, upon the whole, been largely developed on so many plots or under so many conditions of manuring as either *Agrostis vulgaris* or *Festuca ovina*. This species is noted for yielding a large bulk of aftermath, but it is not liked by cattle, either in a green state or when made into hay, owing, it is supposed, to its soft, spongy nature and lack of saline matter in its composition; hence, it has been recommended to sprinkle a little common salt over it when stacking or before giving it to cattle.

Avena elatior is a tall-growing tufted grass possessing very deeply penetrating fibrous roots, densely covered with root-hairs, but not so much branched as in the case of the Poas. This species is strikingly deficient on the unmanured plot, but gains ground on the highly manured plots where also its tufted habit has been observed to be most developed. Its nutritive qualities depend to a very large extent upon the character of the soil upon which it grows. The herbage is very productive, and when growing in a mixed pasture cattle and sheep eat it very well, but they do not like to be confined to it exclusively.

Avena pubescens has short, creeping underground root-stocks and fine, thread-like roots, generally superficial, which produce a fair amount of produce on the unmanured and mineral manured plots, but goes down where there is any degree of luxuriance among its associates. Notwithstanding its somewhat hard nature, cattle and horses eat it when mixed with other grasses.

Poa pratensis.—This grass, in addition to its tufted habit, has numerous underground stolons, from which are given off intricately branched fibrous roots not penetrating very deeply, but forming a dense mass beneath the surface. It is only able to maintain its position in a mixed herbage when a liberal amount of nitrogenous manure is applied. It has frequently been employed alone for curing into hay, but its chief value is exhibited as a pasture grass. It endures the frosts of winter better than most other species. It is impossible to dismiss *Poa pratensis* without a reference to the peculiarities it manifests in America and in New Zealand. In the United States, where it is known under the name of Kentucky blue grass, it has been cultivated with striking success, and when it has taken possession of a pasture the value of the land is immediately enhanced.

Dactylis glomerata is a robust, free-growing grass, with strong, stout, fibrous roots, descending to a considerable depth. The broad leaves vary greatly in color and luxuriance, according to the condition of soil, and manure applied. The foregoing table shows that it becomes really prominent only under the liberal application of ammonium salts with a corresponding liberal supply of mineral constituents. This species is more highly esteemed and commended than any other grass by both farmers and graziers, a most decided proof of its great value and wonderful adaptation to many soils, provided they are of sufficient richness. Cut at the proper stage of growth it makes good hay which is easily masticated, digested and assimilated by animals. The testimony that has been collected from all parts of the world clearly places this species among the best of our forage grasses, and there is not the shadow of a doubt that the interests of our graziers and dairymen would be greatly promoted by its more extended cultivation.

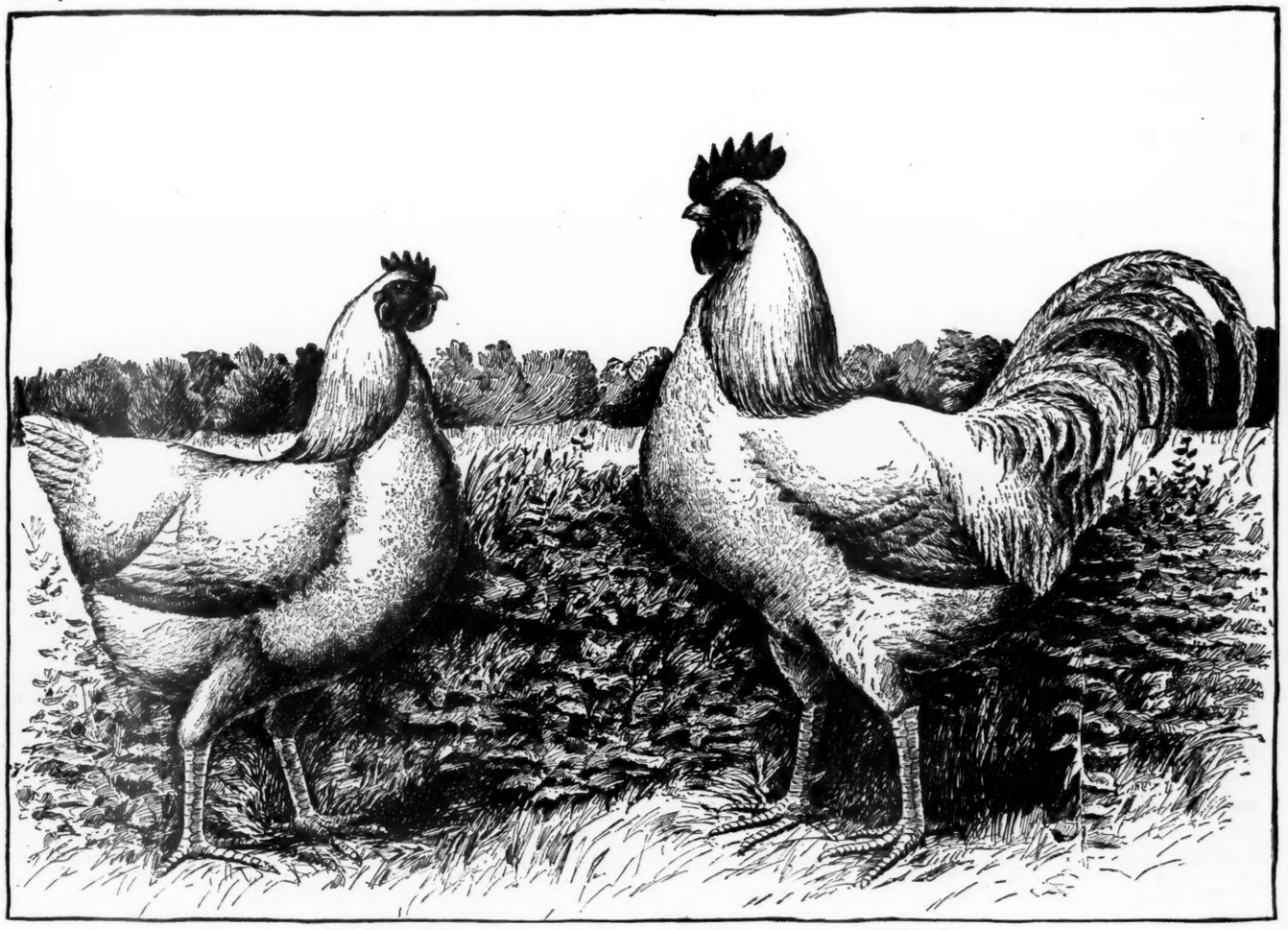
Festuca ovina is a perennial, densely-tufted grass, often provided with numerous fine, creeping, underground stolons, by means of which the plant is widely spread, especially when the flowering tendency is restricted. The characters favorable to it are its dense rooting faculty, its tufted habit, abundant and fine offsets, threading their way among other roots, fine, slender leaves, capable of

expanding or closing, according to hygroscopic conditions, enabling the plant to insinuate itself among its competitors. Its restricted evaporating surface, robust constitution and power of adaptation to diverse circumstances give it a great advantage. The general result at Rothamsted is that *Festuca ovina* has gained in prominence on all the deficiently or only moderately manured plots; and it has done so the most, other things being equal, when, with a sufficiency of nitrogenous manure favoring graminaceous luxuriance, there has been a deficiency of mineral supply preventing maturation, and consequently limiting the power of competition of the freer-growing grasses.

WHITE JAVA FOWLS.

There is a singular tendency of colored breeds of fowls to throw white chickens. The White Wyandottes and Plymouth Rocks were originally produced from colored parents, and it is not improbable that all the white breeds have similarly descended from colored ancestry. The Javas have been known until recently only as a black breed, but the White Java is now recognized as a distinct and well-established class of fowls. It originated in 1877, three white chicks, two pullets and a cockerel, appearing in a clutch hatched from the eggs of Black Java fowls. These were in the yards of Prof. W. C. Tucker, of Erie Co., N. Y., who kept them separate from the blacks, two families being started, from which White Javas have been bred since. By breeding back and forth between the two families, strict in-breeding has been avoided, and the stamina of the breed preserved from deterioration. They received much attention from breeders and fanciers, and as soon as the breed proved to be thoroughly well-established, it was admitted to the standard.

The White Java fowls possess the same form and general characteristics except color as the older Blacks. They are good layers at all times, and extra good in winter; good sitters and good mothers. They breed true to color and form, are stylish, blocky birds, and unlike most other Asiatics, are graceful in motion. The plumage is pure white, with bright and single comb and wattles; yellow legs and skin. When first hatched the chicks show a pinafore of dusky gray or smoky color, which disappears with the full plumage. They feather out rapidly and attain early maturity, the pullets beginning to lay at the age of five months. They are excellent for the table, and seem destined to attain a general and permanent popularity as a general-purpose breed of fowls. Our engraving represents a pair of White Javas from the original yard.



PAIR OF PURE BRED WHITE JAVA FOWLS.

ADVANTAGES OF A SINGLE BREED OF POULTRY.

MISS E. K. WINANS, NEW JERSEY.

The most important question in regard to pure-bred flocks of fowls usually must be whether they are as profitable as those made up of especially good birds of all kinds, or even no kind of breed. The writer has settled this question greatly to her own satisfaction, in favor of one highly-bred sort, but knows there is much to be said on the other side. She found an army of Houdans, Plymouth Rocks and Leghorns with their cross-bred progeny, of great use in the general course of events; where one sort failed, another filled the gap. But in striking a balance for the year the pure-bred fowls had greatly the advantage on account of the better sales of stock, and eggs for hatching. Keeping two or more breeds is a very different affair from concentrating attention on one. To perfect a single breed and keep it perfect, needs much care, and in most cases one kind would be over-favored. If that danger is avoided and the business carried on in an unbiased way, it is apt to lose through the lack of the quick observation which enthusiasm only gives. And unless one has at command more farms than one, there are complications in guarding different sorts of breeding stock. How can one keep them entirely separate and yet give them the free range which is a great aid to success? There is a terrible strain on the conscience when in the height of the season one sees the duty of refusing to sell eggs because of a sudden flight over a fence, and many are the odd looking birds that have come from yards where the owners' consciences were not keen. There is a strong impression that highly-bred flocks are not hardy. They can be and are. If not too

closely bred, if hatched properly from fresh eggs of strong parents, if reared hardily and given range while young, a thousand Houdans or Black Spanish fowls can be kept as easily as a thousand "ring streaked, speckled and spotted" ones. The truth is that we remember the death of a fine bird and forget the lost "barn yard" biddy. Among a great number of any breed, many chickens will be badly marked, and some may revert to the original brown, wood bird, but the stock will nevertheless be pure, and the best of it is sure to pay quick dividends. The flock kept for breeding should be often reinforced with unrelated members, "fresh blood," as it is emphatically called. Many fanciers scoff at the dangers of inbreeding, urging its benefits, but unquestionably the strength of a strain of poultry often does run out when all the cocks in a neighborhood are cousins. There is also the pleasure in the work of poultry-keeping to be considered, and in that point of view the pure-bred flocks are far ahead of their lowly rivals. There is delight in reaching an ideal even if only in cocks and hens. To raise one year a Houdan hen, handsome and strong, and a good layer, though too light colored and small; to raise from her chickens next year one better than she, and fashionably dark, but still objectionably light in weight; to find in yet another season her grandchildren quite perfect in their line of life, means interesting work all that time, and the reward of having in a small way improved this world a bit.

Pride is another motive for having thoroughbred fowls. A great flock of them, their feathers all right or nearly so, is a sight that all normal minded people like to see. Who does not remember, after a drive across the country, a flock of a hundred dazzling White Leghorns, or a group of Houdans turning their queer heads over their shoulders?

It is easier to change from a mongrel flock to a pure bred one than is generally supposed. The simplest way is to raise gradually from capital breeding stock enough birds to justify one in selling all but that sort. What is called "grading up" the stock has the disadvantage of the fact that the graded-up birds would not be of established breed for many generations, and during those years would be worth little more than common fowls. No one who has not tried it can understand the amount of thought and work the poultry breeder must give to selecting the right birds for the breeding flocks and to buying exactly what is needed to fortify weak points; nor can he believe that such work is interesting. Various races of poultry "rise, flourish and decay," according to fashion, but any one of them is profitable in capable hands which hold fast to their chosen breed.

KEEPING POULTRY FOR PROFIT.

Rev. F. E. Stout, Emmet Co., Michigan, forwards us a number of questions which are not only pertinent, but involve matters of great interest to many others who are contemplating the poultry business for profit and on an extended scale. Our subscriber asks:

What I want to know is, whether a small farm in a Northern climate can safely be arranged as a poultry farm with the sole desire of profit:

1. Will hens lay more in a warm or cold climate?
2. In which is disease more prevalent?
3. How many eggs is an average yield from one hen of good breed with good care during a year?
4. How many hens can be most profitably kept in a flock?
5. How large should the house be for them?
6. How large the yard?
7. With fuel for cutting, will it pay to arrange a large number of pens in one building (a barn already built) and warm with furnace during winter?

The questions were referred to Mr. P. H. Jacobs, who replies as follows:

1. As would naturally be supposed, the warmer climate of the South gives it an advantage, but the insect enemies of that section are great obstacles, as it is more difficult to resist vermin than cold. With care to guard against this, however, the hens in the warmer climate should lay the larger number of eggs.

2. Roup prevails more extensively at the North, but otherwise there is no difference. Much depends on the management.

3. The matter of averaging the number of eggs to expect in a year is one that depends on many conditions. A small flock receives the house scraps, and any case of sickness, or drawback of any kind, is easily noticed. With large numbers the management becomes laborious. It is an excellent average if one hundred eggs can be secured from each hen in a flock of two hundred per annum. Small flocks sometimes average thirty per cent more. Bear in mind that the same results cannot be expected from broody, fat or old hens, pullets or inferior hens that may be from a flock uniform in every respect. As the dairyman selects the best milkers and does not retain dry cows, the selection of layers must also be made with a view to the production of each individual.

4. The smaller the flock the better the chance for each fowl, but twenty hens in a flock are sufficient, as a maximum number, and they will lay more eggs, proportionately, than a larger flock.

5. Each hen should have at least five square feet of space in the poultry house, hence a house ten by ten feet will accommodate twenty hens, but ten square feet per hen is better, especially during winter.

6. There should be two yards for each flock, each yard to be at least twenty-five by fifty feet, so as to change the hens from one yard to the other, as occasion requires. This allows of growing some kind of green food in one while the hens occupy the other, promotes cleanliness of the yards and lessens the risk of disease.

7. In arranging a building it must be done in a manner to allow a small window for each flock, so as to permit the sunlight and warmth to enter. Hens delight to dust in the places warmed by the sun. The difficulty with heating a building is that it renders the fowls more liable to colds if they are at any time exposed outside. If the building is not heated more than sufficient to keep off frost and dampness it may be found advantageous. A temperature not higher than fifty degrees above zero will keep the hens in good health.

It may be added that those who derive large profits from a small flock make no estimate for the labor, as it is of but little consequence, but when large numbers of fowls are kept the labor is an important item of the expenses. In beginning with large numbers it is difficult to avoid disease, especially if the hens are purchased wherever they can be found, as a single individual of the flock may bring vermin, roup or even cholera into the houses and yards. Success can be attained only with fowls bred from selected females, and pure-bred males that possess the characteristics desired. The poultry house should be arranged for the comfort of the hens more than for the convenience of the owner. It is not safe to venture any large amount of capital in the poultry business without experience, and a competent assistant cannot be hired at ordinary wages, as skill is valuable, nor can one go into the business, leaving the work to be managed by ordinary hired help, while he engages in some other business elsewhere. It may be mentioned that the largest poultry farms are in the North, the South not having devoted as much attention to poultry as she may hereafter do.

MUSKRATS AND POND LILIES.

F. S. ANDREWS.

About fifteen years ago I became quite enthusiastic in regard to introducing pond lilies into my grounds. Having a piece of low land where the water remained nearly up to the surface all summer, and near a creek from which more water could be obtained if needed, I took out two hundred loads of muck as a beginning, using it for composting with barnyard manure. A near neighbor having caught the "muck fever," I allowed him to send his teams and take out a thousand loads; this, with my own excavations, gave me a very nice pond two to three feet deep, fifty feet wide, and nearly two hundred long. I first planted *Nelumbium luteum*, which was a great success, and the third year hundreds of plants bloomed, much to my own gratification and my neighbors' who visited my lily-pond. Other varieties and species were introduced, and I began to feel pretty sure that I had at last struck one family of plants that needed no coddling, but could take care of themselves, requiring no fertilizer, hoeing, weeding, staking, nor dusting with poisonous compounds for destroying their insect enemies. But enemies came, and worked so slyly and silently that they were not even suspected of being around until the glory of my lily-pond had disappeared: then it was discovered that muskrats were feasting on the tubers of the *Nelumbium*, but did not trouble those of the common water lily (*Nymphœa odorata*). The latter remains in great numbers and my pond is well-stocked with it, but of other species not one plant remains. Being thankful for small favors, I shall love and cling to the little water nymph so long as she clings to me.

Calendulas.—Plants raised from seed sown in a hot-bed in February have been in bloom all summer, and will continue to flower until the snow hides their faces, and after that if we are favored with Indian summer. These are among the few flowers we must have; we like their colors, even though old-fashioned; we like their generosity; they are ever in bloom and enjoy rather than resent cutting; they are bold, showing plainly they occupy a prominent place in the garden and mean to fill it well. The double varieties are a great improvement over the original single ones.

A COZY DWELLING FOR $3,200.

We illustrate herewith a home-like and sightly dwelling house for a farm, village or suburban situation. It is from designs by Messrs. L. B. Valk & Son. The perspective view, Fig. 1, shows an unpretending house with ample verandas and broadly-overhanging eaves, eminently suitable for a large lot. The first floor plan is shown in Fig. 2. The hall, which is entered directly from the veranda, is a spacious apartment, wholly unlike the narrow, dreary stair hall which is almost universal in this country. This hall has a broad, open fireplace in one corner and is furnished with seats to make it a pleasant and elegant reception-room. A broad opening, which is hung with a curtain, leads from the hall to the dining-room, to which a bright, cheerful aspect is given by an open fireplace and a large bay window, the latter of which may be converted into a conservatory, if desired, by means of a glass partition. The parlor is wholly apart from the rest of the house and is furnished with a cozy corner, well lighted and furnished with fixed seats. The kitchen is fitted up with all conveniences, and is so separated from the other rooms of the house that the odors of cookery cannot penetrate them. The second floor, of which Fig. 3 shows the plan, contains three roomy chambers, a bath room and ample closets. Each one of the chambers may be warmed. A stairway leads to the attic, which is floored, but only one room in it is finished, the remainder being used for general storage purposes. The cellar, eighteen by thirty feet, extends only under the dining room and hall. It is six-and-one-half feet high in the clear, with grouted floor, and wall of field stone, laid in cement mortar and painted inside. The first story is clapboarded; the second story and roof shingled. Such a house can be built in the vicinity of New York for $3,200, exclusive of plumbing.

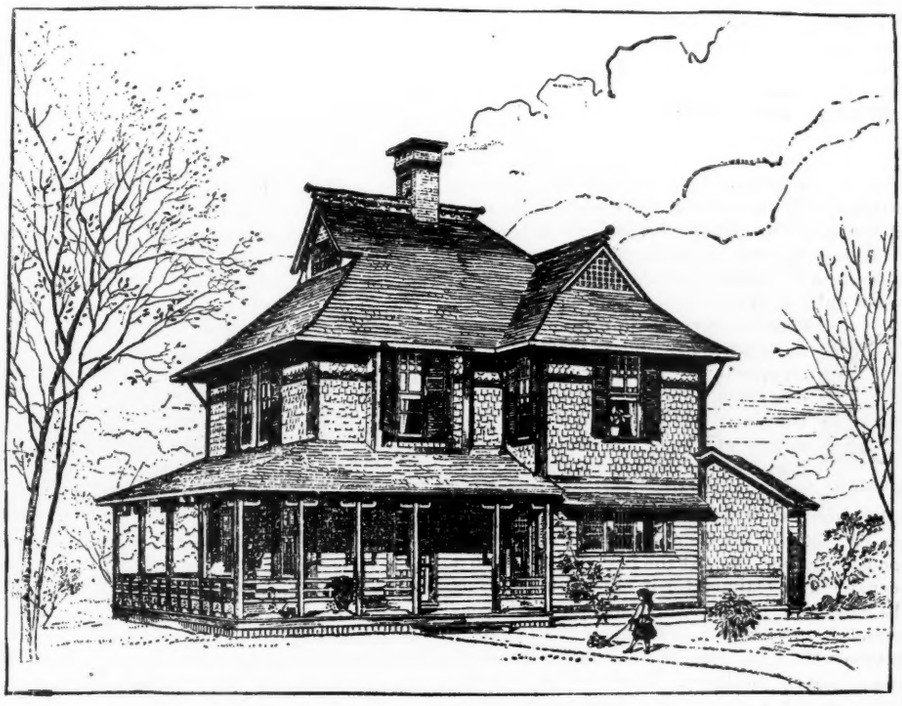


FIG. 1. PERSPECTIVE VIEW OF RURAL COTTAGE.

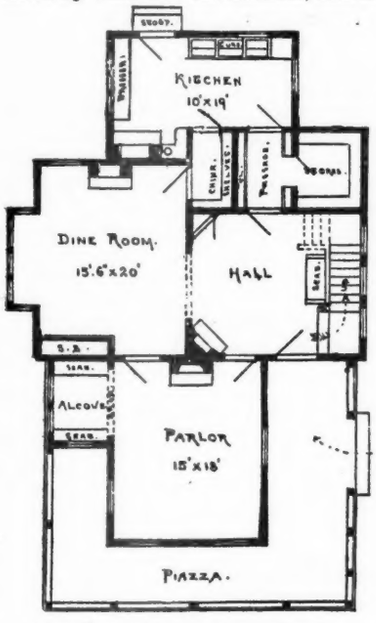


FIG. 2. PLAN OF FIRST FLOOR.

Peas and Potatoes.—In some sections of Maine, where canning of vegetables is carried on to a considerable extent, the farmers drop a pea with each piece of potato as planted. The two thrive well together; the peas yield a good crop for the canner, and do not perceptibly interfere with the potato yield. We regard this a good plan, as we do the planting of cucumbers among early corn, securing a good crop of each.

TREES AND SHRUBBERY NEAR BUILDINGS.

H. W. SADLER, D. C.

A mischievous error is that of placing trees close to buildings. Although trees and shrubs are the chief decorative ornaments of a place, they become positively injurious when closely massed around a habitation. Where large trees are allowed to spread and overhang the roofs, choking gutters and water-leaders, and causing a deposit of mold and other fungus as far as their influence extends, it is impossible for the house to be dry, comfortable, or healthful. Many of the older houses throughout the country are rendered almost uninhabitable by the dense surroundings of trees and shrubbery, and the evil is greatly aggravated when the trees are of evergreen species. Plantings of the finer species of dwarf flowering shrubs may be placed in moderately large masses on the lawn near the house without injury, if not too frequently repeated; but continuous thickets near the building, on any except the north side, will sensibly exclude the cool breezes, so grateful during summer. A house nestling on the sunny side of an evergreen plantation is suggestive of comfort, and presents a cheerful, sheltered appearance during winter. It is as economical as it is attractive; but even these, to be of the greatest benefit, should not approach nearer than one hundred feet of the house. Isolated specimens of rare, or otherwise specially interesting trees, may be planted nearer. A certain amount of shade is very desirable, especially in climates where, during a great portion of the year it is agreeable out of doors. Trees of large and spreading growth should not be planted nearer than sixty feet from the walls of a dwelling-house. Those of medium size, such as the Norway and English maple, that do not attain a height of more than thirty feet, may be planted thirty to forty feet from the building. An additional disadvantage resulting from surrounding the building with a thicket of foliage is that it shuts out the views of immediate and distant scenery, and the house, as an object of the local landscape, is hidden from view. If the structure has any artistic merit, it should in itself form a feature which, to be properly appreciated, must be visible so that its proportions and details may be taken in at a view. A proper connection of the house with its surroundings is the first point to which attention should be given in laying out grounds. A house should not appear to have risen out of the green lawn like a tree. It is necessary that some evidence be apparent of suitable preparation for the building. All

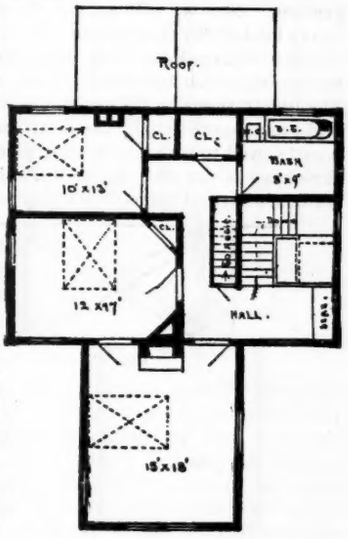


FIG. 3. PLAN OF SECOND FLOOR.

walks should harmonize with the lines of the ground plan. Zig-zag and curving walks close to the straight lines of a large, or even the most humble, dwelling are directly opposed to beauty or propriety.

It has long been recognized as a general principle that round-headed trees contrast best with the perpendicular lines of Gothic architecture, and those of a pointed or conic shape with the horizontal lines of Grecian. It may be questioned whether either of these rules is absolutely correct; certain it is that there may be found compositions of expressive beauty, where the rule is reversed. It is perhaps nearer the facts to state that, in the arrangement of forms harmony will prove more pleasing than contrast.

BRIDGING FOR FLOORS.

L. B. PIERCE, OHIO.

It is often necessary to strengthen floors to support increased weight. This is accomplished in various ways, one of the most successful being by what is technically called "bridging." It consists in so connecting floor joists as to make each one the keystone of an arch, the whole floor being a compound arch or series of arches. That the principle is not fully understood by the non-professional class was recently impressed upon my mind when listening to the reading of a paper by a leading farmer of Ohio, describing his silo. It was over a basement stable, and a part of the means employed to obtain support for a 100-ton silo was by doubling the number of joists and connecting them by what he said was the strongest bridging known. This consisted in sawing short pieces of joists so that they would just fit between the joists, and then toe-nailing them in. At the first thought such a construction might seem what he claimed for it, but a little analysis shows the claims to be fallacious. Fig. 1 represents two joists connected by bridging, which is a short piece of the same-sized timber, nailed in crosswise between the two. One of the joists is seasoned and the other green, as is also the bridging. Now, the green joist, in seasoning, will shrink enough to draw away from the bridging, and bring the whole strain upon the nails alone. At the other joist, which is seasoned, there will be no separation, as the short piece of bridging will not shrink perceptibly lengthwise. But being nailed at either edge, the middle gives way and cracks, as shown in the engraving. Now we will suppose the joists to be in a barn floor, and a heavy load of hay is drawn in. The strain will be taken by the bridge, but in a diagonal direction, depending largely upon the strength of the wood, which has been already weakened by the season-crack. The illustration Fig. 2 shows the style of bridging which both theory and practice prove to be the best. The diagonal bridges are pieces of board sawed to fit, and spiked in place. In this form of bridging the shrinkage is not only taken up, but the bridging is stronger. As joists are several times wider than their thickness, the shrinkage in the perpendicular is greater than the lateral shrinkage, and the parallelogram formed by the floor and ceiling with the joists is made narrower and the diagonals shorter, forcing the bridging closer against the joist. A study of Fig. 2 shows how each joist is the center of an arch which abuts against the neighboring joists. In cellars and barns where there is no ceiling there should be a strip nailed across the joists beneath the bridging.

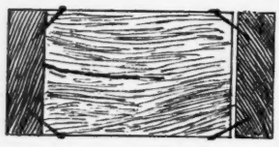


FIG. 1. FAULTY BRIDGING.

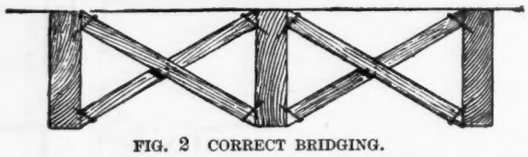
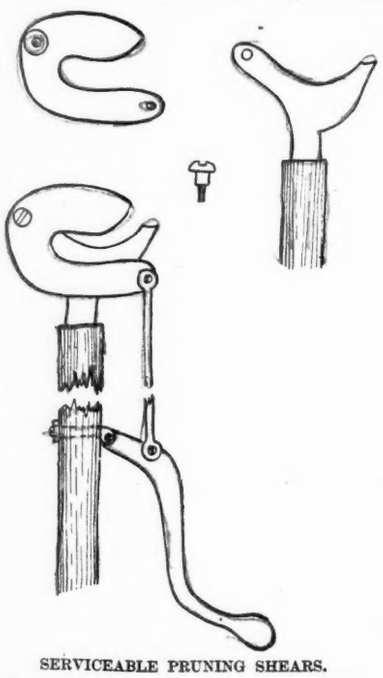


FIG. 2 CORRECT BRIDGING.

The Japan Quince for Hedging.—A beautiful hedge, for the border of a wide walk or drive, or for the edging of a large lawn, may be made with the Japan quince (*Cydonia Japonica*). Its profusion of bright scarlet flowers, covering the stems and branches from the ground to the top in early spring, justly entitles it to the name by which it is often known—the "Burning Bush." The plant is entirely hardy and is of a vigorous habit of growth, so should not be used to a great extent on very small areas or where a very low edging is desired. By careful pruning it can be kept down to a height of three or four feet—not easily to less than that. It propagates somewhat by suckering, but more readily by root cuttings, by means of which the stock can be easily increased. A clump of it, growing to its natural height, upon a green lawn in early spring when few flowers are yet in bloom, is an attractive sight and one that rarely fails to arrest the attention of the passer-by.

HOME-MADE PRUNERS.

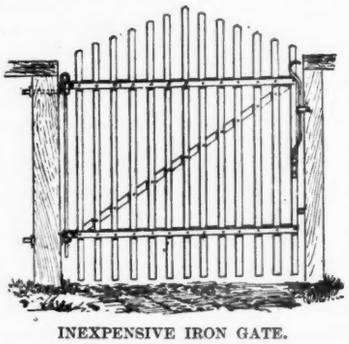
The accompanying engraving shows some home-made pruning shears, which any one can make for his own use. No explanations are needed, perhaps, as the engravings are so plain. The movable shear, to which the pitman rod is attached, does most of the cutting. Both shears are made of thin, hardened steel. From the bolt-hole in the movable shear a rod longer or shorter (the pitman), to correspond with the length of the pole used, runs to the lever shown at the bottom of the cut. In pruning trees and vines the handle of this lever is raised, which forces up the bar and opens the jaws of the shears. Then, on lowering the lever, the twig, if it be placed in the shears, is clipped off. The jaws of the shears must be ground at an angle somewhat more acute than that commonly employed for tailors' shears. The highest part of each bevel must come against the bevel upon which it acts. The screw shown connects the shears.



SERVICEABLE PRUNING SHEARS.

A NEAT AND DURABLE GATE.

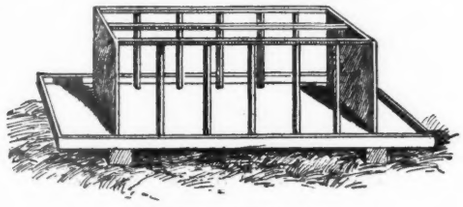
The gate depicted herewith is made wholly of wrought iron, and was designed by Rev. W. Gossett, Henry Co., Indiana. It is two feet eleven inches wide, the two outside pickets are three feet two inches long, and the center one two feet nine inches. The two horizontal bars, the diagonal brace and pickets are of flat iron, three-quarters of an inch wide and three-sixteenths thick. The horizontals are doubled together, an eye being formed at the doubled end, and a space left for the pickets. The latter are slipped in between the two thicknesses of the horizontals and riveted in place. The lower horizontal is five inches above the bottoms of the pickets, and the upper one two-and-one-half feet higher. The rivets extend through all three thicknesses of iron, far enough to be headed down. The diagonal brace is also riveted to the pickets, as shown. The spring latch is eighteen inches long, of half-inch flat iron, three-sixteenths thick, bent and riveted at its lower end to one of the pickets, as shown in the engraving. The hinge-bolts are of three-eighths inch round iron, with an eye turned at one end and a thread cut the entire length. Their length is governed by the thickness of the post, through which they should project something more than an inch. A nut is run upon each clear to the eye, the bolt is then slipped through the hole in the post and a second nut turned on snugly. A rod of round three-eighths inch iron is cut three feet long, an eye turned at one end, and the gate having been placed in position, this rod is slipped down through the eyes of gate and bolts, and the gate is duly hung. An iron catch on the opposite post completes the arrangement. The gate may be left to swing freely either way, or an iron stop may be screwed to the post beneath the catch, as shown in the engraving. The cost of such a gate is about $3.50.



INEXPENSIVE IRON GATE.

FEEDING-RACK FOR FOWLS.

The accompanying illustration is of a device for protecting the food and water of fowls from dirt and waste. It was designed by Miss Nannie Cabell, Nelson Co., Va. The base is a board or plank four feet long and one foot wide. An upright piece of inch board one foot square is firmly nailed crosswise, six inches from each end. Thin boards two inches wide are nailed all around the edge. Three strips one inch square and three feet long are nailed to the top of the vertical boards, one at each upper corner, and the third midway between. On each side a series of vertical slats three inches apart extend from the bottom board to the outer strip. These make a rack through which the fowls can extend their heads



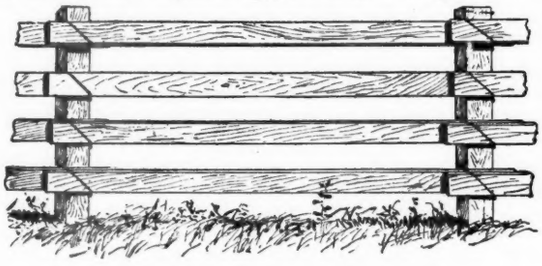
A SECURE FEEDING RACK.

to reach the food which is placed inside. The ledge along the outer edge retains any scattered food. The drinking dishes are set at each end outside of the upright boards. The hens are kept from getting into the food with their feet, yet can reach it easily and withdraw their heads without danger of getting hung by the neck. It may be very cheaply constructed by anyone accustomed to the use of tools.

A GOOD FENCE-FASTENER.

JOHN GOULD, OHIO.

A good, yet cheap fence, one that will "stay" and still be of easy construction, is shown in the illustration. The special advantage of this fence is that it may be made either of boards or rails, which need no nailing to the posts, but are wired on. The posts are set so that the ends of the boards or rails are lapped across them. A No. 9 wire is cut long enough to wrap four times around each post. The wire is first stapled to the side of the post near the top, is crossed in front of the boards, then back of, and again around the post, a staple being driven in at each point where the wire crosses the point under the first staple. The boards are then drawn snugly against the posts, by driving in a ten-penny wire nail close to the wire, and just above the upper edge of the board. About three-fourths of an inch is left protruding: this is turned down by two blows of the hammer, which hooks the nail over the wire and draws it close to the posts, holding the boards or rails solid. There is no danger of splitting the ends of the boards by nailing, and they cannot warp off. In building fence with rails, the posts are set ten feet apart; the rails can be "spotted" and lapped the same way as boards, or they may be put on opposite sides of the post. Or fence



A GOOD FENCE FASTENED WITH WIRE.

wired together in this style may be made of ordinary fence-boards, sixteen feet long. In this case, the posts are set fifteen feet apart from centers, to allow for the lap of the boards at their ends. They should be put on the posts so as to "break joints" with each other.

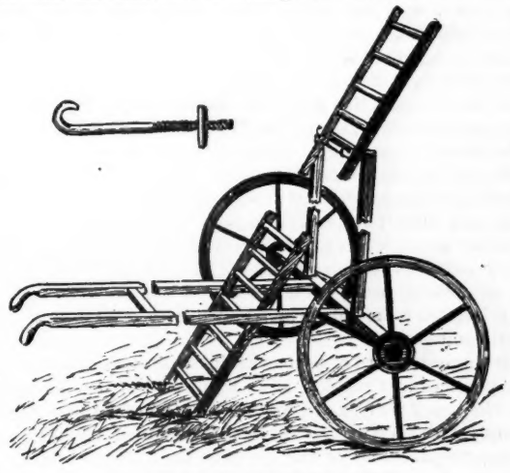
WEAR A VEIL WITH BEES.

W. M. BARNUM, NEW YORK.

"A light veil should always be worn while at work in the apiary." This is the rule of some of our oldest and most prominent apiarists, and no false pride should ever prompt the young apiarist to disregard it. The eyes, for which an angry bee generally darts, are too valuable to risk in such a careless manner. Then, too, it gives a person a feeling of security,—and is often a necessity. A pair of rubber gloves, such as are kept in stock by all apiarian-supply dealers, should be worn by all timid persons—until they become better acquainted with their "little pets." There is really no use for the gloves, if the operator moves quietly and slowly. Of course, if one should hurt a bee, it would naturally resent it. Gloves tend to make a person, to a certain degree, awkward, and considerably more liable to drop or jar a frame, which will arouse the "ire" of a colony of bees as promptly as anything we know of. Worsted or woolen gloves are several times worse than none, as they irritate the bees, and a bee once "real mad" is a "cross bee" for the rest of its life.

WHEELED FRUIT-LADDER.

Our illustration shows the form and construction of a ladder which is very portable, safe and convenient. The ladder itself is made in the ordinary manner, the side pieces being either half-round or flat, with inch holes for the rungs, which must be of some tough, hard wood. The wheels may be from a worn-out wagon, or cultivator. The axle is four feet long, shaped at each end to fit the inside of the wheel hubs. Two horizontal poles of two-by-four scantling, six or eight feet long, are mortised at one end into the side of the axle, while the other extremities are tapered off to form handles, and a cross-piece one-by-two inches is mortised into the poles and nailed there. Two upright pieces, five feet long, are also mortised into the axle, and a cross-piece fastened into the upper



A PORTABLE FRUIT LADDER.

ends. The ladder is firmly attached to the side-pieces by half-inch screw-bolts. Two hooks of the form shown in the upper part of the engraving project through the upper end of the uprights and hook over one of the rungs of the ladder. When in use the foot of the ladder rests upon the ground, and it is virtually a step-ladder, but far more portable and convenient.

Cattle and Sheep in Montana.—The cattle interests of Montana have until within a few years been of a rather promiscuous character. The breeding stock was anything that could be got hold of. The result, of course, was unsatisfactory. Within the last few years, thoroughbred males have been introduced, and one can to-day find upon the plains of Montana as good fatted beef for the market as the best custom calls for. The raising of "scrub" beef is a thing of the past in Montana. Grades are the cattle of to-day. The beeves are usually disposed of at the age of two-and-a-half years, the average weight being eleven to twelve hundred pounds. The method of raising is this: The cows are turned out upon the prairie, and allowed to graze unrestrained, the males being kept out at certain seasons of the year. About April, the herdsman collects everything in, and the calves are then selected and branded. This goes on from year to year. It is nothing unusual to see a calf, a yearling and a two-year-old keeping near the mother. The value of a sheep in Montana is reckoned at about four pounds of wool a year to a ram, and one lamb to a ewe. In certain sections they have gone to raising early lambs for market, thinking there was more profit in early mutton than in raising sheep. The increase is rapid, and in about five years the herd becomes so large as to prove profitable from a small beginning. J. B. ROGERS.

FIRE INSURANCE IN STOCK COMPANIES.

The Advantages Of Such Insurance Compared With Mutual or Co-Operative Enterprises.

PETER NOTMAN, NEW YORK.

[The interesting and instructive discussion in current newspapers and periodicals as to the comparative advantages of stock and mutual insurance, by experienced and eminent underwriters and economists, is attracting wide-spread attention among both the insured and insurers. The rapid development of the natural resources of the country and the corresponding growth in the values of property have greatly increased the need of indemnity against loss and damage by fire, and as the enlightened public demand "insurance that insures," this educational debate on a subject of such indubitable importance to all property owners, small and great, by men who have made the study of insurance a life-long specialty, is worthy the very general consideration it is receiving. In recognition, therefore, of the popular desire to have the best and fullest information to be obtained on this pressing question, the AMERICAN AGRICULTURIST has secured the following article from the pen of Mr. Peter Notman, President of the Niagara Fire Insurance Company of New York, one of the oldest and ablest American underwriters.]

I shall endeavor to treat the subject of stock versus mutual insurance under the following classifications: 1. The theory and practice of mutual insurance, and its inherent defects. 2. The theory and practice of stock insurance, and its natural advantages. 3. A comparison of the merits of the two systems.

There are many kinds of mutual fire insurance companies, such as town mutuals, farm mutuals and factory mutuals—for the insurance of the particular classes of property indicated by their names—as well as general mutuals, taking all classes of risks. The most prominent of them are the factory mutuals. Nearly all of this latter class of companies are located in the States of Massachusetts and Rhode Island. Their operations appear, from a perusal of statistics, to be confined almost entirely to their respective States, as they employ no agents and write policies only from their own offices. Their theory is to create a guarantee fund out of the premiums received, less expenses and losses, for the security of their policy-holders, which, so far, is the theory of all insurance. But in the case of the mutuals this guarantee fund is chiefly by notes of hand for a large percentage, say seventy to eighty per cent of the premium for the term of the policy. These notes are unsecured, and though usually held by the courts to be valid obligations, the small amounts and widely-scattered habitations of the givers render collection a tedious and almost impossible thing. Behind the "mutuality" of the purely mutual company there is nothing, then, in the way of security except the obligations of the policy-holders themselves. They absolutely insure each other, and it is the condition of their taking isolated risks only which can justify a man in insuring in a mutual company.

The high standard of perfection in construction, equipment with fire appliances and care of risks required by the factory mutuals limits the benefits of their indemnity to the select few who are able to comply with such terms. While this system of keen inspection and arbitrary requirement of the business they write results in raising the physical quality of such risks to a higher level, it is, upon the other hand, a system of seclusion, for it would be impossible to bring all risks up to such a degree of excellent appointment, and, therefore, if no other companies existed but these, there would be no insurance for the million, and general business would be paralyzed for want of insurance protection. The mutuals dictate so completely that they practically make their own risk. That it would be absolutely out of the question to make all risks fit such stern and exacting conditions must be readily manifest to the most casual reader. The fact that, from a careful collation of the amount written by the factory mutuals in the two States named, they write only about two per cent of all the risks written in the United States, is an eloquent argument against their availability for purposes of general insurance.

Mr. Edward Atkinson, the successor of Mr. Manton and the prophet of the mutuals, has, I observe, in various public utterances and writings, assumed to criticise, with thinly-veiled contempt, the business methods of the stock insurance companies—and indirectly to indict the good sense of the public that insures with them—intimating that such companies are organized and operated on a hand-to-mouth basis, caring not so much for the character and kind of risks they write as for the probable net profit they will produce over and above losses and expenses. Even if this were true, is it not the manner in which almost every line of business in the country is conducted, including that of factory mutual insurance? But when Mr. Atkinson seeks, by the complexion he puts upon such statements, to give the impression that the mutuals are devoted to the work of bringing to perfection the physical condition of the risks they write, as their first and highest consideration, in contradistinction to the greedy scramble of the stock insurance companies to make money only, contenting themselves for lack of improvements in their risks with a proportionately higher rate, we take up the gauntlet he has thrown down. And we do not simply make a negative argument, but go further and adduce the proposition that the stock companies have led, and are leading, the mutuals in public-spirited efforts to provide, in improved construction of buildings, increased water-supply, better equipped and more efficient fire departments and patrol inspection, security to the manufactories, shops and emporiums of trade, and to the dwellings alike of those who live in elegant city residences and humble village and farm homes. The officers of stock insurance companies generally and the members of the National Board, the New York Board, and other local boards and organizations, and of the Western Union Association, have many of them been zealous and indefatigable in the work of obtaining greater water-supply and better distribution of it for the extinguishment of fires, in the control and regulation of the use of the various products of petroleum employed in the arts and for lighting purposes and of electricity used for lighting, in the separation from other goods of explosive materials and substances used or stored, so as to reduce to the minimum the hazard of containing them, and in other ways hereinbefore mentioned for the betterment of risks, and all this *pro bono publico*. In all prominent cities of the United States, particularly in New York, the large number of resident underwriters, by frequent meetings and constant intercourse, are enabled to bring out the best ideas and give them valuable practical application. As a consequence, although the annual fire waste continues to increase, yet relatively to the value of all perishable property in the country, it undoubtedly decreases.

Contrasted with these labors on the part of the stock companies for the improvement and protection of property belonging not only to those who have insured with them, but all others as well, the reforms for which the mutuals strive in the condition of single risks solely for the purpose of equalizing them one with another, and so reducing the probable cost to the assured, it will be seen that the motives of the mutuals are more selfish and their operations far more restricted. It must, therefore, be apparent to any unprejudiced mind, that the spirit of the stock companies has been broader and that their aims have been greater and better.

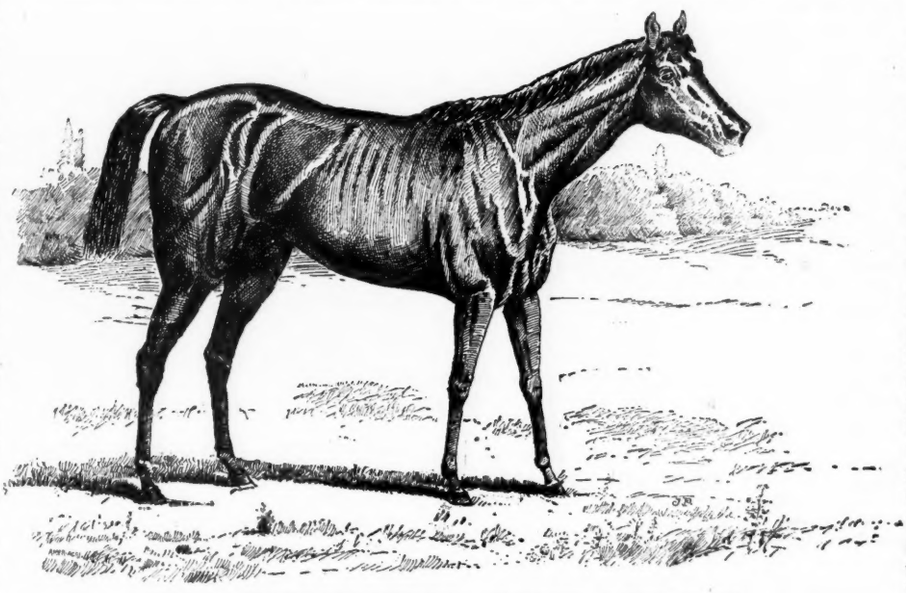
Behind the "mutuality" of the stock companies—that is, the amount of premium paid in each year—is the amount of stock paid in and invested as a guarantee fund for the payment of losses which exceed the premiums. The success of a company depends largely on the amount of its business in premiums and the small percentage of its losses and expenses, but the capital behind this is what really marks the difference between a stock and a mutual company, and that to which the property owner should look in seeking insurance, particularly in places where there is a large accumulation of risk in close proximity of buildings. No insurance company can safely overlook the law of average. In this respect I think stock companies observe the law much more carefully than do the mutuals—in fact, the latter companies, from a careful examination of their reports made public, seem to insure large sums without any particular reference to whether those sums are justified by an average of the class. For this reason the practice of the stock companies seems to be better than that of the mutuals. A disregard of obtaining an average of risks is not only injurious to a company itself, as affecting its success, but it acts injuriously in a mutual company upon many of its members. Where a few large lines are taken, when a large proportion of the risks are of moderate size compared with those large lines, if one of the larger ones burns, then the smaller ones suffer much more in proportion than if the lines were nearly equal. They suffer either by a reduction of their security in funds appropriated to pay the large loss, or they may be called upon to pay an assessment for a large loss when for a moderate one no assessment would be necessary. In every way, then, it becomes important for a company to writes its lines as nearly upon an average as possible.

I have endeavored to impartially present the comparative merits of stock and mutual insurance companies and their claims to the consideration and patronage of the public. To some of my brethren in the stock companies it may appear that I have conceded too much to the mutuals, but to all I wish success proportionate to their merits.

Raising Turnips for Seed.—In Pennsylvania, where the growing of turnips for seed is a great industry, the seed is sown between the rows of corn, after the last working. This gives turnips about two inches in diameter, the most desirable size for seed purposes. In this manner a good crop is secured at a nominal cost, as they require no work after sowing. Sufficient roots can be grown with an acre of corn to set three acres for seed the following season.

THE USE AND THE ABUSE OF GRADES.

Just where to draw the line in regard to the use of grade cattle, has not yet been closely defined. Farmers are over easily pleased in their selections of sires. The one most readily obtained is generally with them the best. Little if any regard is had for preserving purity of race or of securing a good cross. The dairy farmer breeds solely for milk, and not, as should be, with a view to improve his herds by selecting from the heifers of his dairy stock the most choice wherewith he can annually bring in young and improved cows to replace the older ones which are disqualified either from age or being by nature below the standard of a first-class dairy cow. Any farmer can breed up a herd. Few farmers do better than to retain the average merit of what they have commenced with, while in the aggregate the dairy herds of the country at large, especially those maintained to provide the milk supply of our great cities, go steadily down in quality. Milk is the keynote of the dairy room until the point of over-production has been reached, and the question, how are we to remunerate ourselves for outlay and time, is pressing for an immediate answer. That a good grade cow is a most valuable animal and a grade bull is a pestiferous beast, all skilled in the art of breeding have long since recognized. Why, then, are grades to be bred? For several reasons: The first and most cogent one is that many native cows are good milkers which, if judiciously crossed with any of the fashionable dairy families, will most probably produce better than themselves. That is, their heifer calves will surpass the dams. The bull calves must be converted into veal if half-bred of the smaller races, such as the Channel Island and black-nosed Ayrshire or the Devons. The Devons are most intelligent, as also are the Herefords, and when clean-bred or nearly so, make the very best of oxen. The native cow crossed with beef-producing lines will, on a second cross, be most valuable when a farmer can raise sufficient keep to bring the steers to maturity, and the heifers will always repay the cost of maintenance, although not so ready of sale as would be the heifers from a cross with the favorite dairy families. There is at present a market which is not known of, and which offers pleasing prospects for those who will cater to it. In suburban towns families would gladly own their cow if a thrifty animal could be bought at reasonable rates. Now the owner of a family cow must possess an angular, uncouth specimen without value, save as a milker, or spend a small fortune for a pedigree cow beautiful and pleasing on the lawn, but a constant care in view of the high price and the natural laws of danger to animal life. The cost to the breeder between producing a native calf and that of producing a grade calf is so small that it should never be considered. The trifling difficulties attendant on the matter should not enter into account.



THE THOROUGHBRED HORSE DONOVAN.

A DISTINGUISHED THOROUGHBRED HORSE.

A. B. ALLEN.

The thoroughbred horse Donovan, belonging to the Duke of Portland, is described as being over sixteen hands in height, extra well muscled, particularly on the back and thighs, with very stout legs and large, strong joints. He is of a pure bay color except a star in his broad forehead. Although only three years old, he is so well and evenly developed he appears nearer to a five-year-old horse. He won the rich Derby prize the second year in succession, and also this season the Ascot, nearly as valuable, with several others. His winnings of prizes thus far as reported, amount to $170,000. The Duke of Portland is going to expend the whole of this large sum in building nice, comfortable cottages for tenants on his magnificent estate of Welbeck Abbey. I visited this when in England some years ago, and the head groom of the stable politely showed me all the race-horses kept there. They were not only fine animals, but of superior size, and stronger make-up than is generally the case of thoroughbreds. The present Duke of Portland is a grand-nephew of the Duke of that day, his great-uncle leaving no children. He was recently married to a highly estimable and beautiful untitled girl, of nearly his own age. She is said to stand nearly six feet high—quite as tall as himself. What with obtaining this rare prize, and those of his horses, he may be considered a very lucky man. The illustration is a portrait of Donovan in the present year's form.

THE MEXICAN FARMER.

RALPH S. TARR.

Among farmers the Mexican is unique, lacking in thrift, without energy and entirely devoid of foresight. His mode of living is extremely simple and often quite barbarous. These statements may be denied by those who are directly interested, but they are so evident as to cause remarks such as these from all who pass through the territory of New Mexico. The early Mexicans came from Spain in the fifteenth and sixteenth centuries. Their native country was in many ways similar to the new territory which they settled. Agriculture had been their native employment, and in Spain it has been practiced for ages as a profitable business. Desert lands have from time immemorial been made to yield the finest fruits, flowers and trees in the Spanish domains. It will be seen, therefore, that the Spanish settlers had no new conditions to contend with. The climate was warm, the country mountainous, the soil excellent, and irrigation was necessary for agriculture, just as in Spain. There was an opportunity to reproduce the agriculture of Spain on a grand scale and make the Mexican and surrounding arid territories one immense garden spot. This was not done. Several centuries have elapsed since the first settlements, and to-day the river flood plains alone are cultivated and in an indifferent way. The Indians are as good farmers as the Mexicans. The main principle of Mexican farming is laziness, and the results are correspondingly poor. The busy, bustling life of harvest time is unknown among the Mexicans. Leaving out of consideration the few wealthy, educated Mexicans and taking account only of the ordinary class which forms ninety-nine per cent of the whole, it is safe to say that not one in fifty cultivates more than five acres. I should put the average Mexican farm at not more than four acres. The amount cultivated is directly dependent upon the ability of the owner to care for it personally. His wife and children may help him, in fact they frequently do nearly all the work; but he never hires outside labor, though in times of great need he may exchange a day's labor with a neighbor.

A Mexican places no value upon his time. An American may have to pay him one dollar a day, a rich Mexican only twenty-five cents. In so far he has a certain value set upon his time, but if it comes to a question of a small amount of money or a great amount of labor, the latter is invariably chosen. An Eastern farmer when planning a work of improvement carefully calculates the cost, estimating the value of his time before deciding upon the matter. No such thing is done by the Mexicans. I could enumerate many cases

where ten times more expense has been incurred in actual labor than would have been necessary if the project had been carefully calculated and a small amount of money used.

Another peculiarity of the Mexican is his entire want of foresight. It would seem that he never thinks upon any subject. A thing can or cannot be raised accordingly as it has or has not been raised in that vicinity before. In one place it was believed that potatoes could not be raised. Some one had once tried to raise them, and in irrigating had flooded the ground and rotted the potatoes. In the same place it was believed that strawberries could not be grown. The reason for it was that in irrigating muddy water was used and the flowers were covered with a thin mud coating after irrigation. No fertilization could take place, hence no berries were raised. Many similar follies are believed in absolutely without reason. What their forefathers did they do, and they are in consequence a very impoverished race. No thought is given to the morrow and no improvements are made. Fruit trees and vines, although very prolific and profitable, are rarely planted by the ordinary Mexican. Wheat, beans, red peppers and onions are planted in quantities barely sufficient to last from harvest to harvest.

In one part of New Mexico where, owing to the breaking of the headworks of their irrigating system, there was no water, and hence no crops for one season, the storekeeper gave the Mexicans seed beans for the next year and took in payment one-half the crop, without himself doing any work on the crop. This is a good illustration of the character and condition of the Mexicans, as well as the rascality of the storekeeper.

In a short drive recently through Northern New Mexico on the Rio Grande I saw several Mexicans plowing, or rather scratching, the ground with a forked stick. The primitiveness of their agriculture is startling. The mortar and pestle for grinding the wheat, the hand sickle for harvesting it, the forked stick for plowing the ground,—these are the farming implements of a large class of farmers. One can hardly believe that he is in the same continent and age with the progressive Eastern agriculturist. They live in mud ("adobe") houses, without a floor, with a mud and brush roof, with their dogs and chickens, and often with their pigs. Swallows build their nests in the house, and everything betokens a lowness hardly credible. Vermin of all sorts breed and thrive in the dirt, and yet these people are unable to account for the prevalence of smallpox and diphtheria among them. Such a state of misery and ignorance is practically unknown in the East. It is as shocking as it is inexplicable.

MAPLE TREE SCALE IN BROOKLYN.

A. S. FULLER.

Brooklyn, N. Y., has been noted as a city where streets and avenues were shaded in summer by the overhanging branches of some of the most beautiful trees to be found in this country. As her streets and avenues were extended in her rapid growth, the shade-tree planting has always kept pace with other improvements until trees in front of every house came to be considered as much a part of it as the doors and windows. The result of this general custom of planting street trees everywhere along its hundreds of miles of streets has made Brooklyn more like one vast park, than a great commercial city, as it really is. But the chief ornament, and what should be the pride of Brooklyn, her trees and vines, are in danger; and already millions of silent enemies are industriously sucking the life from thousands of the noblest trees in her streets, and the stunted growth and blackened twigs show the dire results of an attack from an insidious and formidable foe, known to entomologists as the *Pulvinaria innumerabilis*, or in unscientific language, "The Cottony Maple Scale."

This species of scale insect was first described in 1854 by the veteran entomologist, Mr. S. S. Rathvon, of Pennsylvania. It has also been re-described under different generic and specific names in later years, but to Mr. Rathvon is due the honor of first calling attention to an insect likely to prove a most formidable enemy to various trees, shrubs and vines. This pest belongs to a family of minute insects known as the *Coccidæ* of the order *Hemiptera* or half-winged sucking bugs. The young of this cottony maple-scale are hatched in spring or early summer and for several days thereafter are very lively, crawling about, and at last finding a convenient leaf settle down, thrusting their beaks into the larger veins of the leaves, sucking the sap or juices therefrom. The young coccids from this time onward increase in size very rapidly, exuding a waxy secretion with which they cover their backs. When the insects are about a month old they undergo their first moult, after which the waxy secretions increase even more rapidly than this event, and soon long cottony filaments protrude from under the waxy scale. A little later in the season the male coccid crawls out from under the scale, leaving the females at home. The males live only a few days and then die, while the females remain enclosed in the cottony filaments and waxy shield. As the autumn approaches and the sap in the trees ceases to flow, the females move from the leaves to the twigs and larger branches, where they remain dormant over winter. This is a brief life history of one of the most destructive insect pests that ever attacked the trees of a city. While this cottony maple tree scale seems to prefer the soft maples, known as the silver (*Acer dasycarpum*) and red maple (*Acer rubrum*), still, when these are not in sufficient numbers it will thrive upon the oak, linden, elm, hackberry, osage orange, willow, currant, gooseberry, grapevine and other closely-allied trees, shrubs and vines.

In a recent visit to Brooklyn we found it abundant on grapevines in the city yards, and have no doubt that it swarms on various other plants in gardens, besides upon the soft maples in almost every street and avenue. Another food plant is the *ampelopsis*—American and Japan ivy—and as the latter has of late become very popular for covering the walls of private dwellings and churches, it may be well for those whom it concerns to look for this coccid underneath "those walls of green" which are the pride of many a household in Brooklyn. If it once becomes established in the ivy it will be far more difficult to dislodge it than from the trees, for it is possible to destroy this pest on trees by severe pruning in winter and washing the stems and larger branches with caustic solutions and other insecticides, but the ivy stems are far too numerous and so interlaced in their growth to be readily cleared of such minute insects. It seems to be the opinion of some of the older residents of Brooklyn that this pest is of recent introduction, and we were informed that it first made its appearance on the maples two years ago; but this is doubtless an error, for it is scarcely possible that it could have become so numerous in so short a time, and it is more than probable that it has been slowly multiplying for many years, but has only recently become so abundant as to attract any considerable attention. But whether an old or recently introduced pest, it is one that cannot be easily subdued, and nothing short of concerted action on the part of all who have gardens as well as the city authorities will check its progress and prevent the total destruction of the larger part of the trees and vines in the streets, gardens and parks of Brooklyn.

HYDRAULIC RAMS.

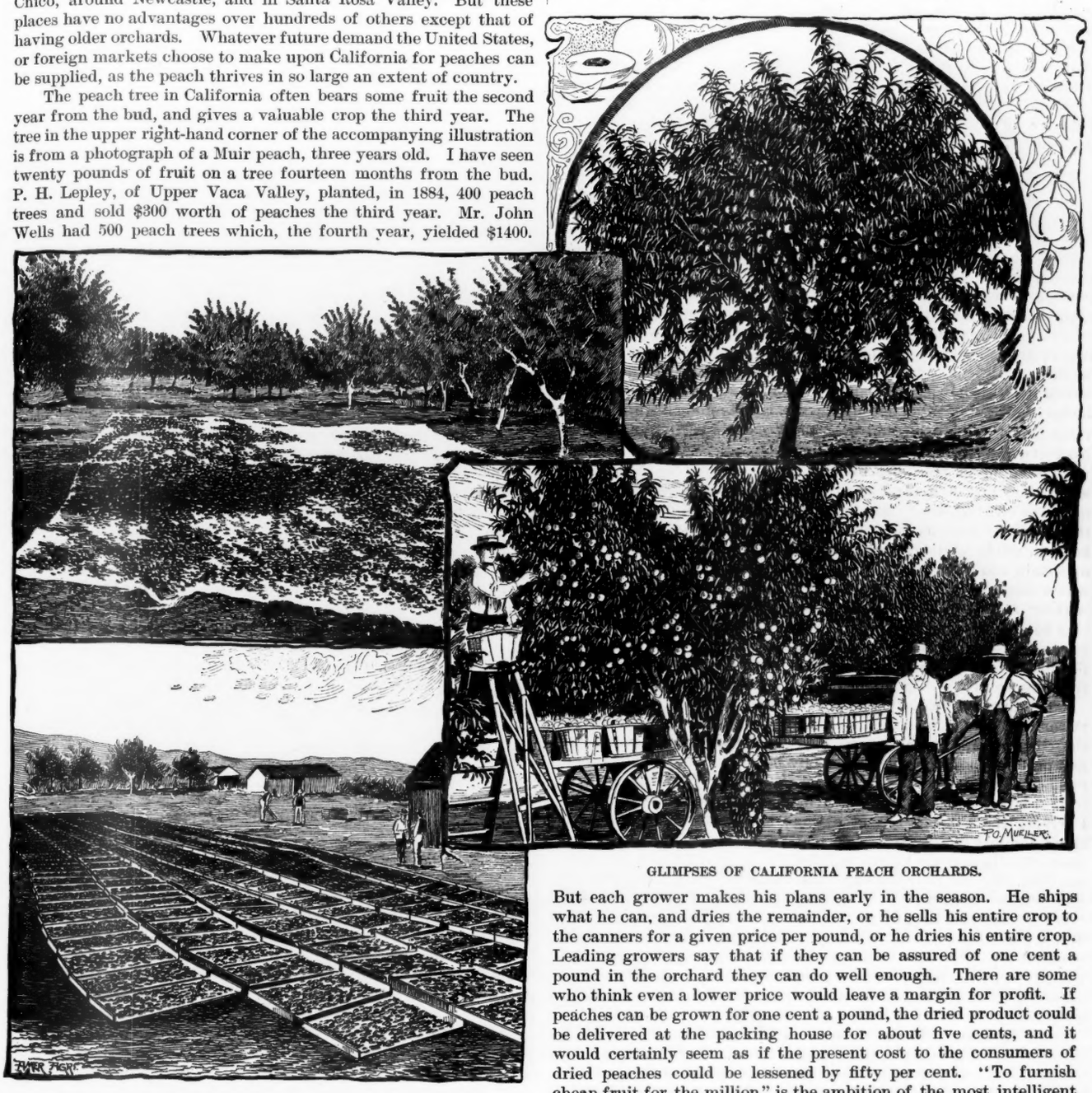
Very few farmers understand the method of raising water by the use of the hydraulic ram, though there are many places where they can be profitably employed. The invention is an old one and apparently comes near perpetual motion. The ram itself is a pear-shaped iron cylinder, placed in the ground at a depth sufficient to protect it from the effect of frost in winter. The spring or well which supplies the water is situated at some point above, so that there will be a fall of one foot for every eight feet of perpendicular height to which the water is to be carried. For instance, if it is necessary to force water up a hill to the house, which stands forty-eight feet above the spring, the fall must be at least six feet from the spring to the ram. The horizontal distance has no effect on the calculation, and it is often carried hundreds of feet, and in some cases over a thousand. The principle on which the water is forced up is by compressed air. The water passes from the spring in a pipe, say two inches in diameter, against a check-valve which is lifted up by the force of the water until it reaches a certain point, when a portion of the water is crowded by its own weight into the ram until the air is so compressed that it discharges itself into a small pipe, say half an inch in diameter, which runs up the elevation to the barn, house or wherever wanted. In well constructed rams the power has been found to be about two-thirds of the energy of the falling water. Wherever small quantities of water are needed, this way of supplying the want has been found to be very convenient. The only thing that seems to stop the working is a failure of the water supply. Night and day, year after year, the little air engine works away, needing no rest, oil or wind, simply water, and that in abundance. One in Norfolk Co., Massachusetts, has been in operation for many years and is still at work supplying the owner's house and barn with water. To one who has never seen its workings, it is very interesting: No visible power in sight; the little valve rises to its proper elevation, remains there an instant, then drops to its base of operations, only to start upward again; which is repeated continually.

COMMERCIAL PEACH ORCHARDS IN CALIFORNIA.

CHARLES H. SHINN.

The peach is one of the universal fruits of California. It grows everywhere. In the old mining region are deserted peach orchards, and seedling trees in the gulches. I have seen remarkable peach orchards in Shasta and Trinity counties, three hundred miles north of San Francisco, but far inland, away from the sea-fog. The best of California peach orchards are in Santa Clara Valley, in Napa, in Suisun, Sonoma, near Martinez, in the Vacaville district, along the Sacramento river, in the Upper San Joaquin, about Marysville and Chico, around Newcastle, and in Santa Rosa Valley. But these places have no advantages over hundreds of others except that of having older orchards. Whatever future demand the United States, or foreign markets choose to make upon California for peaches can be supplied, as the peach thrives in so large an extent of country.

The peach tree in California often bears some fruit the second year from the bud, and gives a valuable crop the third year. The tree in the upper right-hand corner of the accompanying illustration is from a photograph of a Muir peach, three years old. I have seen twenty pounds of fruit on a tree fourteen months from the bud. P. H. Lepley, of Upper Vaca Valley, planted, in 1884, 400 peach trees and sold $300 worth of peaches the third year. Mr. John Wells had 500 peach trees which, the fourth year, yielded $1400.



GLIMPSES OF CALIFORNIA PEACH ORCHARDS.

L. L. Hatch had a four-years-old Orange Cling which yielded 550 large peaches. The practice with our best orchardists is to thin the fruit so as to let a four-years-old peach tree bear one hundred pounds; a five-years-old tree one hundred and fifty pounds, and a six-years-old tree two hundred pounds. The tree in front of the fruit wagon in the illustration is from a photograph of a five-years-old tree in Vaca Valley. But I have seen six years-old-trees allowed to bear three hundred pounds without injury. In the best fruit districts of the State from twenty-five to forty per cent of the entire area planted is devoted to peaches, and it is my opinion that the proportion of peaches to other fruit crops is greater in the younger orchards, and increases each year. The peach is so easily grown from seed, and budded by the orchardist, that nurserymen's statistics—usually reliable regarding the average of most other fruits—are of little value for peaches. In many districts the peach crop has a very long season, extending from June to the end of November. The best mid-season varieties are those which make up the bulk of the crops for the canners and drying houses.

The system of handling the peach crop varies little in our leading districts. All the fruit must be gathered as it ripens. Some must be shipped green, some sold to the canners, and some dried. But each grower makes his plans early in the season. He ships what he can, and dries the remainder, or he sells his entire crop to the canners for a given price per pound, or he dries his entire crop. Leading growers say that if they can be assured of one cent a pound in the orchard they can do well enough. There are some who think even a lower price would leave a margin for profit. If peaches can be grown for one cent a pound, the dried product could be delivered at the packing house for about five cents, and it would certainly seem as if the present cost to the consumers of dried peaches could be lessened by fifty per cent. "To furnish cheap fruit for the million" is the ambition of the most intelligent growers here. They know that a great industry cannot be built up without wholesale methods and a willingness to accept small profits. The present price of dried fruit, however, is far above the five-cent limit, from nine to fifteen cents being paid the producer, the lower price being for unpeeled peaches, the higher for choice peeled.

Besides the Chinese, numbers of white laborers gather in the fruit regions early in April, but the camping-out of families, so picturesque a feature in the leading districts, hardly begins before June. Families generally work by contract; handle the entire product of a given block of trees, or gather and dry fruit for a given

sun per pound. There are few artificial dryers except near the coast. Peaches are dried in the sun—either spread on broad sheets or on wooden trays, as shown in the left of the illustration. The best sun-dried fruit from such districts as Vacaville, or Fresno, or Bakersfield, pays the producers better than selling to the canners. As for varieties, the following are considered best for drying: Muir, Susquehanna, Foster, Salway, Orange Cling, Crawford's Early and Crawford's Late. At Niles, Alameda county, the Salway ripens too late, and the Late Crawford curls. Muir is everywhere a favorite. The canners use about the same varieties, besides a number of other clings, such as Lemon, McKevitt's and Late White.

As for shipping peaches, the following list from a leading grower is named in order of ripening: Alexander, Waterloo, Gov. Garland, Briggs' May, Yellow St. John, Foster, Early Crawford, Mary's Choice, Reeves' Favorite, Late Crawford, Susquehanna, Lord Palmerston, Muir, Bunyan's Orange Cling, Sellers' Golden Cling, Mother Porter, Lovell, Piquet's Late, La Grange, Salway, Heath Cling, George's Late Cling, Bilyeu's Late, Miller's Late Seedling. Several of these are local seedlings known only in California.

RAISING SAPLINGS FOR HOOP POLES.

W. D. BOYNTON, WISCONSIN.

The old-fashioned shaved hoop for pork and molasses barrels is much more in demand to-day than it was fifty years ago. The consumption is enormous, and increasing. Cutting the poles, and their manufacture into hoops form a considerable industry in many sections of the country. Many farmers and farmers' boys find an opportunity to add to the annual income by thus employing the winter months. The hoop shop, with its huge sheet iron heater in which to burn the shavings and ends of poles, its row of shaving horses, splitter and other accouterments, is a common institution on those farms that are in and near the great timber regions of the Northern and Northwestern States.

The supply of poles has thus far come mainly from the forests, where they are of natural growth. This supply must eventually fail. The clearing up of these forest lands for agricultural purposes, the immense destruction from forest fires, and the close watch kept on public and private domains, render this source of supply uncertain and hazardous. In the earlier history of the industry, it was a common practice for all hands to go into the woods, and without regard to the ownership of land, to take the poles wherever found. Owing to the increasing scarcity of the material and to the consequent higher value attached to it, this is no longer possible. The hoop-maker must now own his poles or purchase the "stumpage," as it is termed.

This growing scarcity is driving very many into the culture of the article. Hoop plantations are now found in many sections of the country, and in most cases have been found quite successful and profitable. Hoop poles can really be grown cheaper than they can be collected from the forest, where they are usually scattered over a large territory, and often in places inaccessible to teams. Carrying the poles, a few at a time, long distances through the thick, tangled woods, is a slow and very toilsome process. And then, too, there is no known and definite supply. When grown in the field, they are near the shop, not liable to forest fires, a known and reliable quantity.

The varieties usually grown for this purpose are the Ash White and Black, and the Hickory. The first two are of very rapid growth, especially the Black Ash, which shoots up very rapidly indeed. The Hickory is of slow growth from the seed, though as a sprout from an old root is often nearly equal to the Ash in rapidity of growth. It takes several years for it to get well rooted and started, however. Three years ago I planted a large quantity of seeds of the above named, in the nursery row. The Black Ash now stand six to ten feet high, the White Ash five to nine feet, while the Hickories are all under two feet. They are getting an enormous root, however, and will doubtless soon take a shoot upward. They make the best quality of hoops, but hoop-makers tell me that they get no more for them than for the Ash hoops. Therefore, the Ash should form the main feature of the plantation; and the Black Ash is undoubtedly the most profitable. It rives more freely than the White Ash, and is therefore more economical to the manufacturer. Its more rapid growth brings quicker returns to the grower.

A good strong soil is the best for hoop-pole growing, although a soil that has been run by ordinary cropping will usually produce a good crop of poles or other timber growth; owing probably to the fact that the roots go farther for their food. The Hickory loves best a heavy loam and clay soil; the White Ash, a loamy or sandy soil; and the Black Ash, a mucky one; though either will thrive fairly well on almost any soil. The White Ash has proved very hardy on the plains of the West. It is generally planted on timber claims.

A large proportion of waste lands in the Eastern and Northern States is of a swampy nature, where drainage is difficult and expensive. Much of it is subject to periodical overflows. Such lands are particularly valuable for the production of timber; and where not actually boggy, both the White and Black Ash will do well upon them. They should be cleared of the worthless Willow and Alder growths that usually cumber them. If too stumpy and rough to be plowed, they may be dug up sufficiently with heavy shovel plow and harrow to offer a chance for the seeds or young trees. Plant the seeds in drills upon a good piece of mellow, well-worked soil, and after one season's growth, transplant to where wanted. If the land can be prepared for the direct introduction of the seed, all the better. In such case, mark the land off into drills four feet apart and three inches deep, about the time the seeds are ripening, which will be in late October. Sow the seeds about as thickly as peas in the drill, and cover about the same as for drilled corn. The seeds should not be allowed to dry between picking and sowing, or they will not germinate until the second year. If it is desirable to do the planting in the spring instead of in the fall, gather the seeds when ripe, spread them out on the ground in a layer two or three inches deep, cover with hay or straw to the depth of six inches and throw enough earth on to hold the straw in place. They will thus be kept in a damp condition ready to sprout in the spring.

I speak of the use of these rough lands for this purpose because they are of no value for anything else. It is economy to make such use of these lands, but it will also pay to put our best lands to the culture of the hoop pole and other timbers. The first two years the cultivation of the hoop pole plantation should be about the same as that usually given to drilled corn. After this no further cultivation will be needed, as the growth will by that time have completely shaded the ground. This close growth also serves to keep the limbs down. The lower side limbs being choked out will die off and leave the straight stems that are desirable in hoop-pole culture. Over thirty thousand of five to eight-foot poles can be grown upon an acre. When these are cut out, especially if cut in late autumn and winter, a multitude of sprouts will spring up to take their places, and these will be of much more rapid growth than the first crop, by reason of the greatly-increased root under them. A perpetual supply is thus kept up.

The market price for eight-foot poles is about twelve dollars per 1,000, which will make on an average 2,500 hoops; and the hoops usually bring ten dollars to twelve dollars per 1,000. The product of an acre, when manufactured into hoops at home, as will be seen, is no inconsiderable item.

LIFTING PLANTS FOR WINTER.

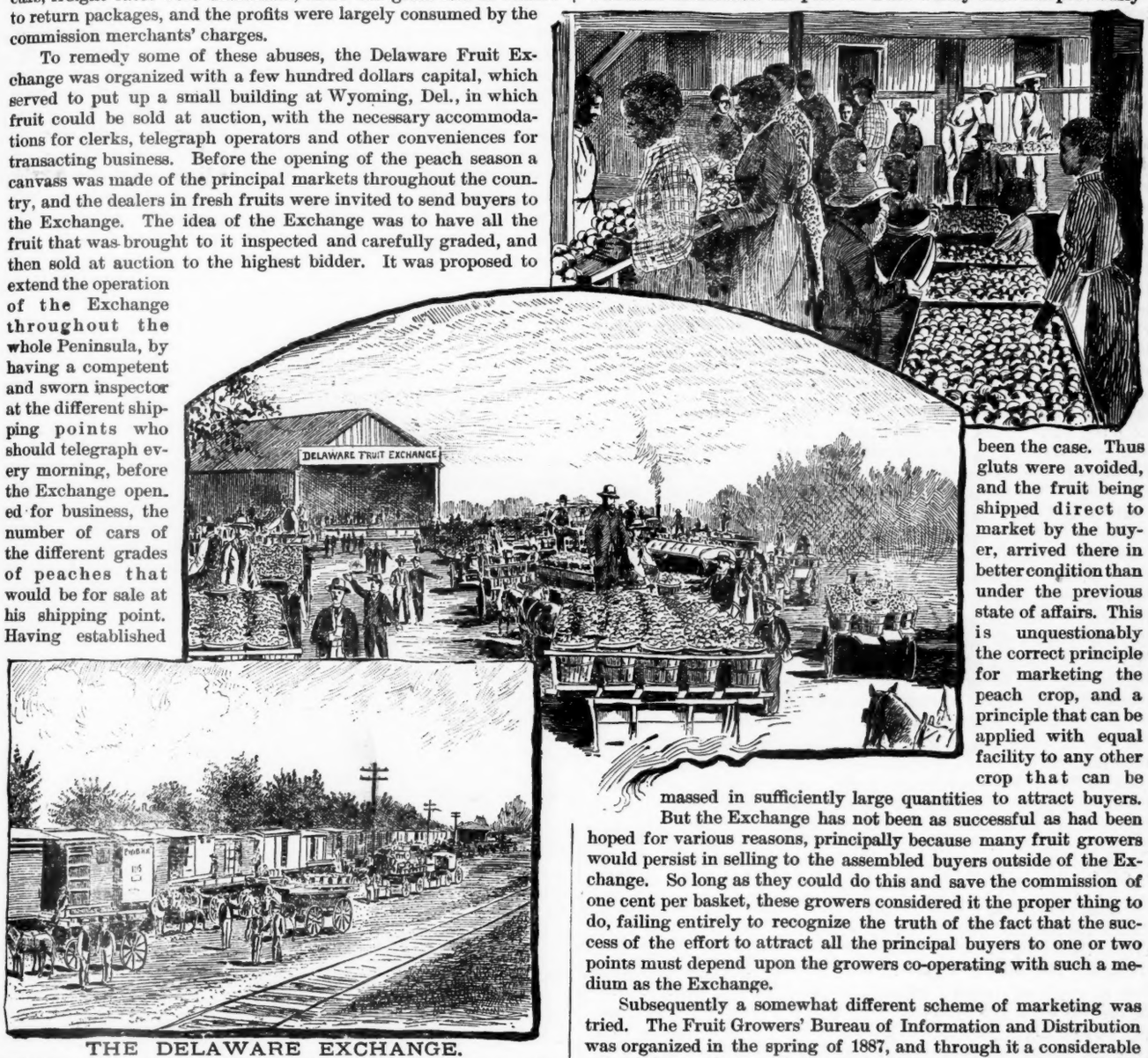
L. B. PIERCE, OHIO.

Taking up and potting geraniums and other bedding plants which farmers' wives and other amateurs wish to preserve, should be done before the advent of cool, frosty weather, in order that some root growth can be made before winter. As generally managed, the work is deferred to the latest possible moment, and then the plants are kept in a hall-way or on the porch until the snows of early November alarm the owner, and they are taken in. This treatment gives little or no opportunity for the plants to make any progress in their new position. The cold nights and occasional cold days keep the temperature of the soil in the pots much lower than it should be. Newly-potted plants require to be kept, for at least two weeks after potting, in a room where the temperature is above 55°. How to get a geranium with roots sixteen inches long into an eight- or nine-inch pot is often a puzzle to the amateur, but is easy when one learns how. First put in an inch of broken crocks for drainage and then cover with a little coarse earth. Take the plant in the right hand with roots hanging down, insert the roots in the pot so the ends of most of the longest ones rest on the earth, give the plant a twist, lowering it a little at the same time, shake in some fine soil with the left hand, and repeat the operation until the roots are all in. The turning of the plant distributes the roots and "takes up the slack" or surplus length. After a few trials the experimenter will be able to do it nicely without cramming or crowding the roots. Do not keep newly potted plants too wet.

MARKETING THE PENINSULA PEACH CROP.

The peach crop of the Delaware and Maryland peninsula aggregates several million baskets in a good season, and is the most important crop of this region. Until within a few years the customary method of selling was for the growers to ship their fruit at haphazard to Philadelphia, New York, Boston and other large markets to be sold on commission. The result was that frequently the markets were glutted and the prices received did not cover the cost of transportation, baskets and sellers' commission. The prices were very uneven, there was great difficulty in getting sufficient cars, freight rates were exorbitant, there was great loss in failure to return packages, and the profits were largely consumed by the commission merchants' charges.

To remedy some of these abuses, the Delaware Fruit Exchange was organized with a few hundred dollars capital, which served to put up a small building at Wyoming, Del., in which fruit could be sold at auction, with the necessary accommodations for clerks, telegraph operators and other conveniences for transacting business. Before the opening of the peach season a canvass was made of the principal markets throughout the country, and the dealers in fresh fruits were invited to send buyers to the Exchange. The idea of the Exchange was to have all the fruit that was brought to it inspected and carefully graded, and then sold at auction to the highest bidder. It was proposed to extend the operation of the Exchange throughout the whole Peninsula, by having a competent and sworn inspector at the different shipping points who should telegraph every morning, before the Exchange opened for business, the number of cars of the different grades of peaches that would be for sale at his shipping point. Having established confidence in the grade, this fruit at all these different stations could be sold at auction on the Exchange without the buyer ever seeing it.



THE DELAWARE EXCHANGE.

The result was that for several seasons the Exchange worked quite satisfactorily. The trade found it much better to send a man to buy such peaches as they desired, at the point where the peaches were collected, than to have the fruit shipped to their market indiscriminately. All fruit was paid for on the spot as soon as sold, the Exchange reserving one cent per basket for its services and charging five dollars per car for loading the fruit. The baskets were sold with the fruit. Communication by wire was kept up with all the principal markets, and the price of peaches was made at Wyoming instead of in New York and other cities. There was always competition among the buyers to secure the best fruit, which kept up prices.

Most of the former abuses of the peach marketing system were in this way overcome. The farmer drove up to the Exchange with his peaches properly graded, had them inspected and the grade guaranteed, a sample basket or two of each grade was exposed at the auctioneer's stand, sold for what it would bring, and the lot immediately loaded upon the cars. The money was paid to the Exchange on the spot and turned over to the farmer, less a commission of one cent per basket. The farmer thus had no further trouble with freight rates, cars, commission merchants or other evils of the old system. The farmers also received a higher price for their fruit, not only because it was better assorted than formerly, but because the buyers came from all parts of the country, and therefore distributed the peaches more widely than had previously been the case. Thus gluts were avoided, and the fruit being shipped direct to market by the buyer, arrived there in better condition than under the previous state of affairs. This is unquestionably the correct principle for marketing the peach crop, and a principle that can be applied with equal facility to any other crop that can be massed in sufficiently large quantities to attract buyers.

But the Exchange has not been as successful as had been hoped for various reasons, principally because many fruit growers would persist in selling to the assembled buyers outside of the Exchange. So long as they could do this and save the commission of one cent per basket, these growers considered it the proper thing to do, failing entirely to recognize the truth of the fact that the success of the effort to attract all the principal buyers to one or two points must depend upon the growers co-operating with such a medium as the Exchange.

Subsequently a somewhat different scheme of marketing was tried. The Fruit Growers' Bureau of Information and Distribution was organized in the spring of 1887, and through it a considerable part of the peach crop of 1887 and 1888 was sold. This institution is practically a peach "trust." It is operated by an executive committee. They ascertain the number of car-loads of peaches that can be taken daily at profitable prices by the markets within forty-eight hours' communication by rail. The Distributor or Business Manager of the Executive Committee establishes the amount of peaches that should be shipped to each of these markets daily. Members of the Bureau may consign their fruit to these markets by notifying the Distributor, but when the quota for any town are filled, the Distributor has the right to dispatch any car designed for that market to another point. If a member consigns a car to any point whose quotum is already filled, the Distributor can go so far as to confiscate the fruit if necessary to prevent an over-supply at that point. The fruit is consigned to reliable commission merchants, and the Bureau is accountable for prompt returns of sales. The

Bureau is supported by a tax of from five to ten dollars per member, according to the size of his orchard. The central view in our engraving represents the Delaware Fruit Exchange in full operation; at the lower corner is seen the loading of a peach train, and the inner view of a peach-drying establishment is given in the upper right corner of the illustration. While third-rate, or cull, peaches are sent to many of the numerous evaporating factories in the vicinity, because such fruit is unsalable, the most successful evaporators choose only the best peaches for drying. The few who do this usually receive better prices for their crop in the dried form than if sold fresh, but this is because they get fancy prices. It is a mistaken idea that only poor fruit should be evaporated; the best is none too good.

STACKING GRAIN.

GEORGE E. NEWELL, NEW YORK.

There is no reason why every farmer's boy should not learn the art of properly stacking grain and hay. Nearly every farmer can stack grain after a fashion, but not one out of fifty can build up a trim, symmetrical, rain-proof stack. Select the site of the desired stack remote from the shade of any building or grove, and arrange the bottom so that there will be a free circulation of air underneath. The plan of preparing a concave bottom, to give stability to the rick, is not desirable, on account of the natural tendency of the layers of sheaves to settle into a concave position also, and make a hollow in the center of the stack, the very thing most to be avoided. Fix a firm, slightly convex foundation out of stout poles or scantlings, and imbed in the ground short corner uprights, to give rigidity to the bottom of the stack. Put down first a layer of straw and then begin the stack. Put a circle of sheaves, with the butts out, around the convex center. Crowd them tightly together, and keep the butts on an even circle. Lay another circle around the first in the same way, allowing the sheaves of the second circle to lap half of their length on the first. Follow the same practice until the limit of the bottom is reached, and then begin at the center again. A stacker should be on his knees all of the time, and compress the bundles snugly as he follows the circle around. Let the outside ring of the second layer project very slightly over the foundation layer, and repeat until the middle of the desired stack height is reached. Then place each successive layer a little nearer the center, and gradually bring to a tapering peak. It is of vital importance that the center of the stack shall be kept more full and cone shaped all of the way up than is really wanted. It will flatten out greatly by settling. A steep, smooth pitch is imperatively required in the "roof" part of the stack. Straw should not be discolored by wet and exposure more than a few inches on the butts of the outside sheaves. It is a good plan to cap the peak with a thatching of broad-leaf marsh grass, and hang rails over the peak connected by a hay rope, to hold it on. Grain properly stacked in the manner described will come through wet weather without damage to a kernel of its growth if it is thoroughly dry when put up. There is enough grain spoiled annually on farms by bad stacking to pay for the erection of many a commodious barn.

Weeds in Lawns.—The worst lawn weed of late summer and early autumn is one that the careless observer may not see at all. We efer to the "crab-grass" (*Panicum sanguinale digitaria* of the older writers). The stems of this grass lie close to ground, taking root at every joint, and crowding out most other grasses. Fortunately this weed is an annual; were it a perennial we might despair of ever getting rid of it. Its flowers (and seeds, of course,) are borne at the top of each stem, which are a foot, more or less, in height; the flowers and seeds are arranged closely upon flat stems or spikes, which are three to six inches long; there are four to fifteen of them near the top of each stem, and spreading in all directions. From this height these flower-stems are caught by the mower. Where this grass is present the mowings should be carefully removed. The stiff stubble broom made from split rattan is better than a rake. The grass being carefully gathered should be removed and burned. If cut when the seeds are but partly ripe they will derive nourishment enough from the stems to carry them on to maturity, and if they were not removed, would seed the ground and prepare for another crop of trouble next year. Many of the coarser weeds of the lawn are perennials; they are sown in the fall, but the Thistles, Docks, Plantains, and many others, in their early state appear so unlike the mature plant that they are not recognized. It is very important that the cultivator should be familiar not only with the appearance of the seeds of weeds, but with the plants themselves in the different stages of their career. These perennial weeds usually sow themselves, or are sown, unintentionally, with the grass seeds in the fall. They germinate, and their young leaves are often much unlike the leaves that will be borne by the same plant the next spring,—though they differ greatly in this respect: the seedling weed does not make much show in its first season. It is employed in storing up a supply of food for a vigorous growth next spring, when it usually comes to perfection, flowers, and scatters its seeds.

Protection Against Early Frost.—In the climate of New York and its vicinity there are usually a few nights of sharp frost, which destroy the tender plants, and after these, follow several weeks of the most perfect weather, in which such plants as survive the early frosts bloom in the greatest luxuriance. By protecting beds or single plants from these first frosts, the enjoyment of the garden may be greatly prolonged. The protection required is very slight. Newspapers will answer, as will common cotton cloth, sheets or any such fabric. On one occasion having on hand a lot of the Southern cane *Arundinaria* which were too short for fishing-rods, and were sold for a low price, we used them for frames. These were put together, fastening where they crossed with small copper wires to make hexagons or octagons for beds; others fastened together near the top and spread below to form tent frames, made very light frames. Those to cover beds were held above the plants by forked stakes of suitable height, and all were covered with newspapers, fastened on by pins. It took but a short time to make these shields, and not a flower was injured. On one occasion on being obliged to meet a sudden emergency with some plants the hardiness of which we were uncertain, brush, the tops of roadside bushes, were stuck in the soil of the bed, and salt hay scattered loosely over them. The branching brush seemed to bear the weight of the hay.

Sheep and Calves in Corn Fields.—Weeds are likely to escape in the latter cultivation of the corn, and other weeds spring up after cultivation is ended. It is these weeds which foul the land for future years. The weeds in the corn field are neglected during the hurry of grain and hay harvest, threshing, hauling manure, and preparing the ground for wheat. But even better than is the scythe are the sheep. Let them have the run of the corn fields during the autumn. They like the shade of the rows. They will nibble off the lower blades of the corn, but this is in no wise an injury to the crop. The sheep will also find every weed and bunch of grass. Their scent is sharp, and they will discover weeds that would be overlooked. There are very few weeds indeed that will not be cropped by sheep, especially of the Merino breed; they crop so close to the ground that the weeds will hardly start again. The spring calves, if not too strong, may well be put with the sheep. Unless unusually large, they will not damage the corn, and will get considerable feed which would otherwise be wasted.

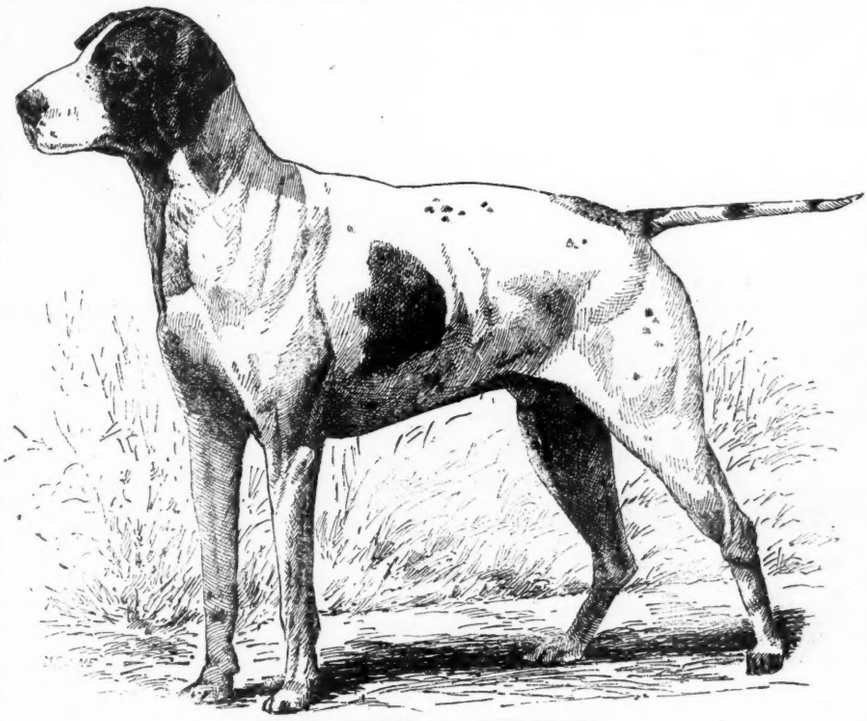
Rye for Pasturage.—Rye sown in September will make during the autumn enough grazing to be profitable. This grazing has an extra value because it comes when other green feed is very scarce. The rye may be grazed during the winter when not buried by snow, and pasturing on it may begin early in spring and continue until the last of May, when the ground can be broken and put in corn. A better crop of corn will be grown than if the rye had not been on the ground. Or the rye may be pastured until June 15, and the animals taken off, when it will set considerable grain. The land may then be put in turnips. Rye used in this way makes enough feed to pay well for the use of the land, and also purifies and recuperates the ground. It can be used to especial advantage in corners cut off by creeks, or otherwise so formed that cultivation is difficult.

Judicious Cross-breeding of Sheep.—A mongrel sire is worse than bad; cross-bred ewes make good dams; that is admitted, but when wool is the chief consideration the first cross is far and away the valuable one. Australian wool has a world-wide renown. The best fleeces are the result of the union of a clean-bred, short-wooled sheep with a clean-bred ram of a long-wooled tribe, or vice versa. All further crossing causes a marked deterioration in the fleece. This is not perceptible in flocks raised for mutton, as the cross-bred ewes can, generation after generation, be bred to pure blooded rams until the old strain is lost and the flock attains an almost clean standard of pedigree. Every cross in the upward direction improves the quality of flocks as mutton sheep.

TRAINING DOGS FOR THE FIELD.

One of the most remarkable examples of acquired and inherited instinct in animals is the propensity of certain breeds of dogs to "point" game. The disposition to pursue and hunt for the game is a natural one to the dog; but to come to an instant stop when the game is sighted, and stand or lie as rigidly as if carved in stone until the master has fired, is a habit which comes only from careful training, aided more or less by tendencies inherited from trained ancestry. No race of dogs possesses this propensity in so high a degree as the pointer, of which a fine typical specimen is shown in our illustration. The setters are nearly as ready to acquire the accomplishment; next come field spaniels, and even terriers have been taught to make themselves exceedingly useful as aids to sportsmen engaged in shooting on the wing, though they can never equal a well-bred pointer.

The training of a dog for staunch and reliable work in the field should begin when it is six to eight months old. The trainer must have some natural feeling of interest in dogs, self-control and patience. The work is to begin in the house or yard, before the dog has seen a bird. Before beginning the first lesson tie a light, strong cord to the collar at the throat. Then throw him a piece of meat, and call "Dead, dead." Repeat this several times, letting the dog eat what it finds, and then throw a piece, as before, but the instant the dog approaches it call "Toho," pulling on the cord at the same time. Hold the dog by the cord away from the meat for a time, then call "Hie on," swinging the right arm forward toward the coveted morsel, and allowing the dog to seize it. All the words of command must be given in a low, quiet voice. After a few such lessons with the check-cord the youngster will learn to stop at the word "Toho" and stand still until the signal "Hie on" is given. If the dog disregards the first word and rushes forward toward the meat, take him back to the spot from which he started and make him stand there until the word "Hie on" is given. This lesson should be repeated until the dog will stop instantly at the word. Then it may be accompanied by raising the left arm; and afterwards raise the arm in silence, and so on until the dog learns to stop at the signal. The next series of lessons is to teach the dog to drop flat down upon the word "Down," used instead of "Toho." In all these lessons kindness and firmness must be combined. Never strike the dog with a whip or even use a tone of reproach, unless the dog is guilty of some willful fault. Commendation and caresses for doing well go much farther than correction, even in words, for mistakes. When the dog has learned to obey the signals for stopping and starting, the next lesson is to overcome its natural alarm at the discharge of a gun. It is best to snap percussion caps on an empty gun at first and at a little distance from the canine pupil. As he becomes accustomed to this, a light charge of powder may be added. At each discharge caress the dog and give him some little tidbit of which he is fond.



THE TYPICAL POINTER.

The young dog, after having learned the first lessons indoors, may be taken to the field and allowed to put them in practice. After a little exercise to show whether the lessons are remembered, the dog is taken where he can get the scent of game. He will start eagerly in chase, followed by his instructor. When supposed to be near enough to the game the word "Toho" is given, and if it is disregarded, the dog must be checked by the cord and brought back to the spot from which he started when the word was given. He will very soon learn to make a point and stand staunchly until he lies down at the word "Down," or the signal of the uplifted hand. He should be taught to drop at the moment the hunted bird rises, and to lie there until the word "Hie on" is given. If he attempts to jump and run to the fallen bird, he must be checked and brought back. After a dog has been taught to drop at the signal given when the bird rises, he will soon learn to take the rising of the bird as the signal to drop.

When a young dog has learned to take and pursue a scent, to point as soon as it sees the game, to drop as the bird rises and to lie still until told to "Hie on," he has acquired the first and most important accomplishments. Retrieving is a distinct matter.

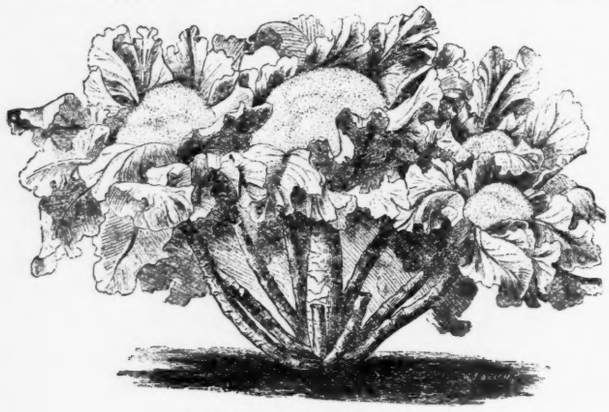
SEED WHEAT.

"Shrunken" wheat is not necessarily the product of a weak plant; for oftener than otherwise a plant of more than average thrift bears shrunken grains. Some soils, particularly the black prairie soils, are rich in the elements that form the plant, but lack those which round out the grain. On such soils there is much straw and a light yield of grain often "shrunken." In other cases the shrunken grains are caused by circumstances other than the condition of the plant. Very unfavorable weather when the grains are forming will prevent their rounding out. If plump grain always came from vigorous plants and shrunken grains from weakly ones, sowing shrunken grain would be objectionable, for the reason that it would be likely to produce weakly plants. The causes which prevent the grain from rounding out often affect the vigor of the germ; and unless the conditions are exceptionally favorable, a considerable per cent of the seed will fail to germinate. The starch in the grain is put there to sustain and build up the young plant until it can expand its foliage above ground. If the grain is very much shrunken, this supply of starch will not be sufficient for the need of the plant. While shrunken wheat can be bought at a lower price per bushel, and while a bushel of it will contain a greater number of grains, using it for seed is not economical.

The best method is to select the seed wheat in the field. Very few fields have a soil so uniform in character and condition, so equally exposed to the sun, etc., that every acre of grain will ripen alike. Some acres will have better wheat than others; and the best acres should be taken for seed. These may not have the heaviest straw. Very rank straw is not desirable, for it shows that the plant has been stimulated until it is overgrown. The straw should indicate that the plants were vigorous and healthy, but no more. Good wheat ripens uniformly, and the straw is clean, bright and golden. If there is much diversity in the length of the straw, long and short growing side by side, it is not good grain for seed; insects, disease or weather have injured the short plants, and their produce is not desirable for seed. There is another reason for selecting the seed wheat in the field: Wheat for flour should be cut when in the milk stage; but for seed it should be allowed to fully ripen—to the point where it would scatter out when handled. The seed should be pure. If there are plants of other varieties in the field, they can be recognized and taken out.

BROCCOLI,—A NEW BRANCHING VARIETY.

The original, or wild form of our garden and field plants known as cabbages, kales and others, are now referred to *Brassica*, the ancient Latin name for the genus. The earlier botanists made about half a dozen genera, which botanists at present reduce to one. Those cultivated forms in which the leaf or the leaf-stem is the edible portion, are derived from *Brassica oleracea*, a sort of open cabbage, which forms no head, and is common on the maritime cliffs of France and England, and other parts of Europe. Those in which the root furnishes the edible, as the various turnips, Swedes, etc., are supposed to be derived from *Brassica cumpestris*, wild throughout Europe and Russian Asia. The various "sprouts," cauliflower, broccoli, etc., are in their garden forms still more unlike their wild state. In both cauliflower and broccoli, the edible portion is the "head" or "curd," which consists of enlarged and abortive flower-buds upon similarly changed flower-stems, and in the cauliflower changed into a very delicately-flowered, curd-like mass in which the structure is difficult to make out. In the broccoli the flower-stems are gathered in small clusters like asparagus shoots. In the cauliflower the curd differs in the purity of its whiteness, being sometimes of a cream-color. In broccoli it is often white, sulphur-color, greenish, purplish, or dark-purple. Some of the white kinds are with difficulty to be distinguished from cauliflower, though the large leaves that surround and protect the head are of different shape in the two. Broccoli is seldom seen in American gardens. On the few occasions when we have tried growing it in contrast with cauliflower, the purple color of the broccoli was objected to. Ordinarily there is a simple stem, bearing a single head, but several forms have appeared on which the stems were sprouted or branched



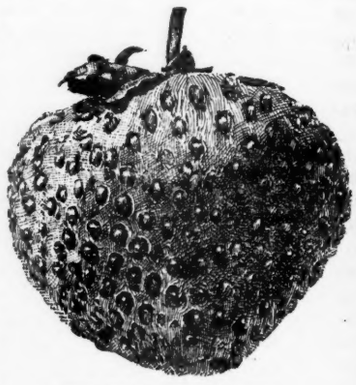
BRANCHING BROCCOLI.

and several small heads produced instead of one. A branching form recently appeared in the seed-raising establishment of Messrs. Sutton & Co., England. In this a single stem bore nine other branches. This was kept on for several years in careful cultivation and selection until a "race" appeared to be well established. The "*Gardener's Chronicle*" (London, Eng.) have published an engraving of specimens, sent by the Messrs. Sutton of their "Branching Broccoli," which we reproduce. The following measurements are given: two feet in height; three feet across; nine feet in circumference; in each case the dimensions were more than stated, as the fractions have been omitted. The main stem produced nine branches, each with its head.

Compact the Wheat Ground.—Wheat succeeds best in a compact seed bed; one in which the particles are not fused into masses, but in which they are distinct and in close contact. Hence, in the preparation of ground for wheat, the roller and harrow should be used as much to compact the seed bed as to pulverize the clods. In such a seed bed there is greatest capillarity; moisture and heat are most generally and equably diffused through the ground. Each grain of seed is likely to find those conditions essential to germination, and the plants those conditions favorable to growth. When the wheat is sown there is often a deficiency of moisture in the upper soil; but if the seed bed has great capillarity, moisture will be lifted from it. In a compact seed-bed there are no holes in which water can collect, and the capillary condition prevents an excess of moisture about the roots. The wheat plant is doubtless injured by stagnant water about its roots, and this is also chiefly responsible for the serious heaving out of wheat by frost. In a compact seed bed the roots also get a surer hold than when they must cling to the sides of holes or crevices. Finally, such a seed bed most readily yields plant food, and the plant can make a stronger growth against frost and insects, or more readily recover from their attacks.

A NEW STRAWBERRY,—THE YALE.

The accompanying illustration, drawn from Nature, represents a new variety which appears to combine the most desirable qualities of a strawberry in an unusual degree. The fruit is large, roundish conical, very uniform in size and shape; color of skin and flesh dark red; flesh firm without a hollow core, juicy, sprightly, and high flavored. It ripens late, holds out well, and is borne on stiff, strong footstalks. It is as equally well adapted for home use as for market, and especially for canning. The blossoms are perfect, and the plant is a vigorous, healthy grower, and very prolific. It is a chance seedling originated near Yale College, and having been brought to public notice at a recent Commencement of the College was appropriately named Yale. At this year's strawberry exhibition of the Massachusetts Horticultural Society, the Society's Silver Medal was awarded to Stephen Hoyt's Sons, the introducers, for the Yale, as the best seedling strawberry not before exhibited. Large as the number of good strawberries is already, from what we know of this newcomer, we consider it a valuable addition to the list of late varieties.



THE YALE STRAWBERRY.

BINDER FOR CORN-STALKS.

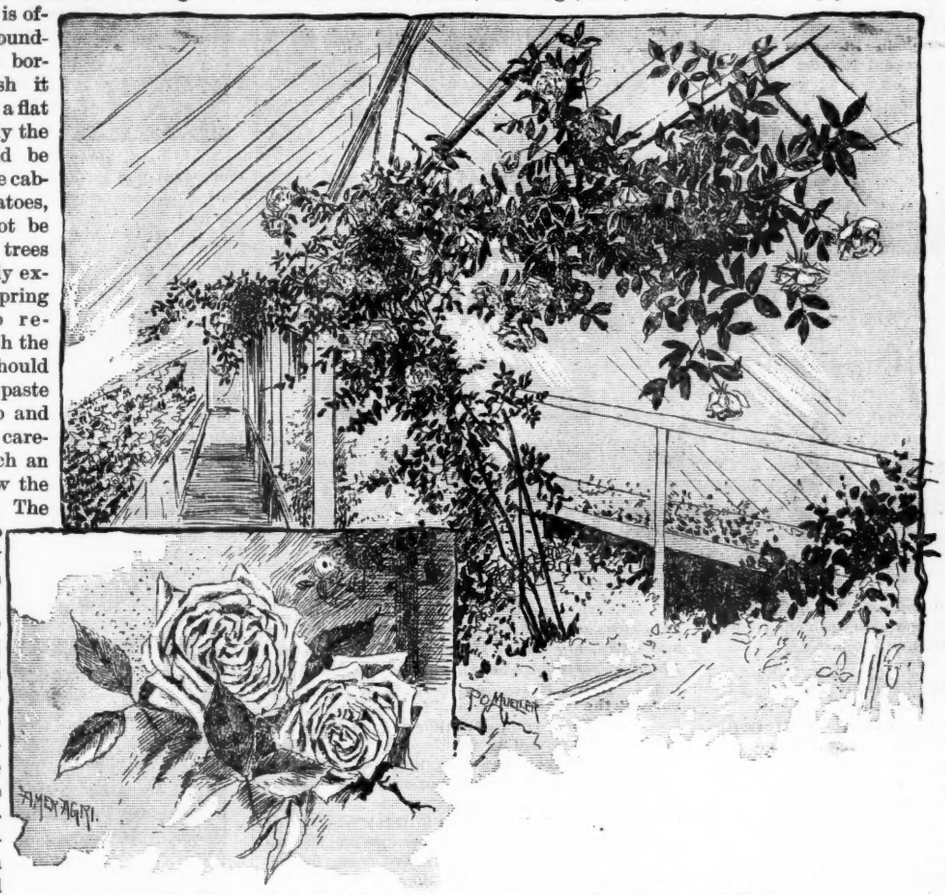
Our illustration shows the workings of a very simple and effective device for drawing the tops of a shock of corn snugly together, preparatory to putting on the band. A round stick of close-grained hard wood, two feet long and an inch and a quarter in diameter, is tapered to a point at one end. Four inches from the other end a half-inch hole is bored, through which is thrust a smooth, round stick of white oak or hickory just large enough to fit snugly into the hole. A piece of strong, small cord is cut three feet long, and each end wound with string to prevent untwisting. One end is firmly tied around the long stick, at the crossing of the smaller stick. This is the tightener complete. When sufficient corn has been cut and set up to form a shock or stook, this implement is thrust through it near the top, as shown in the engraving; the free end of the cord is carried around it and made fast to the stick. The latter is then turned by means of the cross-piece, the cord being wound upon it until the shock is drawn snugly together by the

A SECURE CORN STALK BINDER.

torsion of the cord. A band of straw, corn suckers or pigeon grass is then applied, and the apparatus withdrawn by turning backward until the cord is unwound, and unfastening the loose end. This leaves the shock bound much tighter than it can be done by hand, to say nothing of the saving in muscular exertion.

APPLE TREE BORER.

There are two very different insects known under the common name of apple tree borers. One of these is a handsome beetle about one inch long with two longitudinal white stripes on the top of wing-cases and thorax; these stripes are placed between two of cinnamon brown, hence the name of "two-striped saperda" or *Saperda bivittata*. The female of this insect deposits her eggs on the soft bark of the stem near the ground or close to the main roots. This usually occurs in the spring or about the time the trees are in bloom. The young grubs bore through the bark into the soft wood, where if not disturbed they remain and continue to feed for three years, then pass through their last transformation and become beetles. This is, in brief, the history of this insect, and we may add that where grass and weeds are allowed to grow about the stems of young apple trees they afford fine shelter for this pest, and uncultivated and neglected trees always suffer more from its depredation than those around whose stems no weeds or grass are ever permitted to grow. As the larva or grub of this beetle has a round body and head, it is often called "the round-headed apple-tree borer," to distinguish it from another with a flat head. As a remedy the apple trees should be hoed as often as are cabbages and tomatoes, but if this cannot be done, then the trees have to be carefully examined early in spring and every grub removed, after which the base of the stem should be smeared with a paste made of soft soap and wood ashes, being careful to have it reach an inch or two below the surface of the soil. The application has to be repeated every spring during the month of April. Common tar paper wrapped around the base of the stems will also answer the same purpose, but it is rather more expensive and troublesome to apply. The other kind of apple-tree borer is known as the "flat-headed borer," and is the larva of a small flattish beetle of a greenish black color above, and the under side resembling polished copper. They usually deposit their eggs high up on the main stem or among the larger branches, and the grubs live and feed entirely between the bark and hard wood. They have a very broad, flat head and a slender body, hence the common name of "flat-headed apple-tree borer." The grubs live but one year in the tree, but unfortunately the beetles appear and the females are depositing their eggs throughout the entire summer, so that small grubs and large ones may be found in the same tree from spring until autumn. Smearing the stems and large branches with soft soap and ashes will prevent the females from depositing their eggs, but to cover all the branches with such applications is impracticable, and the better way is to examine the trees once or twice every season and cut away the dead patches of bark and destroy the grubs underneath.



THE CLIMBING PERLE DES JARDINS ROSE.

Taking Care of the Honey Crop.—Market comb honey as early as possible. It is nearly always in good demand and will bring fair prices. Comb honey is always in the best possible condition for market when fresh, and it should be shoved out as long as it will bring paying figures. It is quite different with extracted honey. This is seldom if ever ready for market as taken from the hive; it takes some time for it to thoroughly ripen. This variety of honey is very convenient to handle and store away, and is always improved with age. Extracted honey may be stored away in almost any kind of packages and in any quantities if thoroughly ripened. It should be stored in such packages as will allow of its use in granulated form. For retailing extracted honey we have never found anything better than ordinary glass fruit-jars. The smaller sizes are preferable, the pint size holding one-and-a-half pounds, the quart size three pounds.

A NEW CLIMBING ROSE.

Few roses have as firm a hold in popular favor, and are so highly prized by the professional and amateur rose-grower alike as the *Perle des Jardins*. It is not only admirably adapted for forcing, but thrives very well in the open air, blooming freely in either case. Its large, full, well-formed, canary-yellow flowers, borne on stiff stems, make this variety especially desirable for bouquets and artistic floral decorations, while the dark and glaucous foliage of the plant furnishes an excellent setting for the fragrant, delicately-hued blossoms. It will no doubt be as much a surprise to our readers as it has been to us to learn that this stately Perle has recently evolved itself into a form which while retaining all the excellent qualities of its progenitors has assumed a climbing habit. This has originated in one of the rose-houses of the John Henderson Co., on Long Island, and the original plant as growing there is accurately depicted in our engraving. Its lateral growth is eighteen feet in each direction from the stem, and we are infromed that the plant has carried at one time over one thousand buds and flowers. The climbing habit of this sport was so firmly fixed from the start that not one of all the cuttings taken from it have reverted to the original type, and if there is any perceptible difference between the two it is only that the climbing Perle is even more vigorous and floriferous than the bush form.

Soil for Plants in Pots.—The best soil for plants in pots is to be found in well-rotted turf, or at least sufficiently rotted to destroy the life in the roots of the grass, then the coarser the better, as the growing plants will consume it as wanted. The provident gardener or amateur will always have a pile of sods in some out-of-the-way place, where it will decay and be ever-ready for potting purposes. Some of the best rose growers in our country use nothing else for their young roses, and there can be nothing better; others, in piling up the sods, alternate the layers with stable manure. This makes a good compost, but is a congenial home for worms and grubs which are destructive to the plants. For the best results use sod only, and make an occasional application of some reliable concentrated plant food, but use in moderation.

THE HOUSEHOLD

Handsome Napkins.

The pretty napkins shown in Fig. 1 are intended to be placed between painted and highly finished plates, to protect them from becoming scratched; or they may be used as doylies, or with fruit, cake and lemonade. They are made of Russia sheeting, which costs about fifty cents per yard. The smaller, unfringed one seen in the illustration is six inches square, buttonhole stitched all around the border and embroidered in flat stitch with embroidery silk of fast color. Fig. 2 gives part of the pattern with a corner. The center of the others is seven inches square. In cutting the napkins allow for the desired length of the fringe, draw out the threads for the same and either knot the threads into little bunches or loosely buttonhole stitch over them all around the napkin to prevent it from raveling.

FIG. 1. HANDSOME NAPKINS.

Enlarge to proper size and copy the designs into their center and work them with wash embroidery silk in Kensington or outline stitch.

Importance of Routine.

For the housekeeper routine is a necessity; without it disorder, misrule, chaos, reign. Peace, rest, quiet, comfort, security, find no place in a disorderly household. The two golden rules for the housekeeper are, "A place for everything and everything in its place," "A time for everything and everything in its time." Let the routine be set in these two grooves and it will run as smoothly as cars on the track, and allow the speed to be increased almost indefinitely. In the well-regulated household there is a time for sleeping, and when the hour strikes everybody is in bed and asleep. There is a time for eating, and when the hour strikes everybody is at table. There are days for certain tasks, and the tasks are done on the days set for them. Each day, too, is marked off into portions, and each portion has its allotted work.

The difficulty with most people is not in marking out a routine, but in adhering to it when it is once

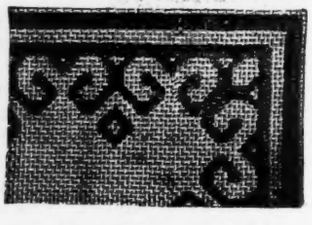


FIG. 2. PATTERN OF CORNER.

marked out, no matter whether one "feels like it" or not. It isn't easy, by any means, to break one's self into a relentless routine and plod on and on like a plough-horse, but the work of the world is done by routinists. Poets, painters, musicians, novelists—those whom we think must "feel like" doing their imaginative work—are as diligent in routine as the dullest book-keeper or the most plodding kitchen-maid. Kings, and queens, and rulers, are even more subject to routine than those whose heads bear no weight of crowns.

So while we wear these necessary fetters nor try to be free from them, we may yet "sing amid our chains," and rejoice in the burthen and weariness, since these are the stars of honor, the significant badge, our titles to the royal name of "thinking, sentient man."

The American Girl.

PALMETTA GOLDSMITH.

A New York daily offers a prize of a double guinea for the best description of the American girl that can be given in two hundred words. As if there were any two hundred words in the dictionary that could fully and aptly portray the best type of the best girl in the world! I for one do not mean to try to do it. I only want to tell the girls who read the AMERICAN AGRICULTURIST something about the kind of girl that is sure to win. She is almost certain not to have beautiful white hands, with tapering fingers, and dimples for knuckles; although the nails are neatly trimmed and clean, her hands show signs of work. Her complexion troubles her very little, and she would never let her mother go to the well for water, nor to the yard for wood, for fear of tan or freckles. When you call on her you don't find her mother always toiling in the kitchen and the daughter always dressed in her best. She is a girl who not only can work, but who can laugh at her work, and this merry laugh is one of her greatest charms. You never stop to think whether or not her hands lack symmetry, because you can see for yourself that they are always doing loving, helpful things for others. If there is a shade too much of sunburn, you do not see it for the sunshine in her face. You think she is never so sweet as when you see her in the kitchen in calico gown and apron, while a peep into the sitting room beyond shows you the patient mother who has labored for so many years, enjoying a restful afternoon, albeit the busy hands are not idle.

If I were a young man looking for a wife, I should want a pretty good acquaintance with my possible mother-in-law before I committed myself. I should want to see my future wife among her brothers and sisters. You can't get to know a girl well enough for a true marrying basis if you only see her dressed up in the parlor. If she and her mother are mutual confidants and advisors; if her brothers go to their elder sister with all their little plans and scrapes, sure of a kindly interest, your heart will be safe in her keeping. But if her father stands in awe of her because she has just returned from boarding school; if she lets her mother do all the hard work to keep her hands nice; if her sisters are "nuisances," and her brothers "troublesome," don't let rosy cheeks or a fair face, or dimples, or bright eyes entice you into asking the fatal question. There will come a time when all these evanescent charms will have vanished.

Now, of course, young ladies never do look for husbands, but if I were a young lady, instead of an old, old lady, and if I had a gentleman friend upon whom I wished to make a good impression, do you know what I would do? I would always have my mother in the trimmest of gowns, and the neatest of caps, and looking her very best and prettiest. I

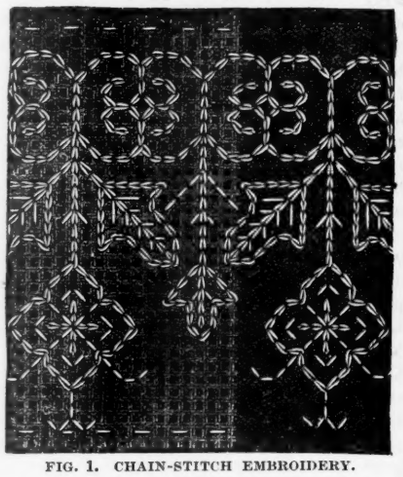


FIG. 1. CHAIN-STITCH EMBROIDERY.

don't want you to do this because it is "policy," dear girls, but remember this, that the girl who "helps her mother" is the girl who will win whatever is worth winning.

A New Style of Embroidery.

Our engravings, Fig. 1 and 2, show a method of embroidery which is a decided improvement on the usual way of stamping the patterns on the material. By its use the frequent spotting or discoloring of the goods in stamping is avoided, and the stitches can be executed perfectly even, each being taken over two threads of the embroidery canvas, as seen in the engravings. Care has to be taken, however, that none of the canvas threads are caught with the embroidery threads, as that would disfigure the embroidery when the canvas thread is pulled out after the work is finished. Chain stitching, if well done, is as handsome as any style of embroidery, and is more fashionable at present than braiding, or all heavy embroidery. These patterns, when worked with

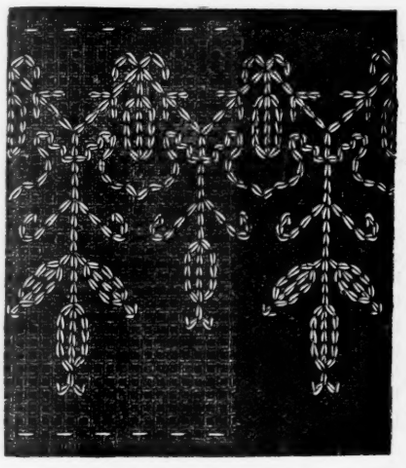


FIG. 2. CHAIN-STITCH EMBROIDERY.

silk thread, are suitable for cloaks, sacks or all kinds of woolen dresses. On garments of wash materials, fast-colored embroidery cotton is to be used.

Mending Extraordinary.

In these days stockings cost so little, and time has become so valuable that it pays better to replace the old with new as soon as the former begins to show signs of wear; and so, stocking-mending has nearly gone out of fashion. But there are still situations where it may be necessary. Listen to the ingenious way in which a South American

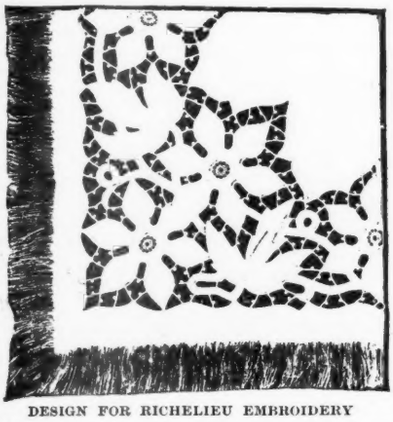
traveler contrived to mend his hose without taking a stitch. In the Brazilian woods are quantities of a tree called the Mangaba, the milk or sap of which has many of the properties of that of the true India-rubber tree, and may some day be used in its place. By spreading some of this thick milk on a piece of cloth slightly larger than the area of the hole to be repaired, filling the stocking with sand or sticking the prepared cloth over the hole, and then coagulating the milk by the addition of a little acid, the rent place has been rendered stronger than any other part of the stocking, for it will never come off. Clothes of all kinds, including boots and rubber cloaks, are patched in the same ready and serviceable way.

Richelieu Embroidery.

NETTIE B. SMITH.

Combining the useful and beautiful in our homes, there is nothing more satisfactory in the way of fancy work, than the Richelieu embroidery. Being durable and easily laundried, it is especially suitable, and certainly nothing could be prettier for a sideboard-cover, bureau-cover and mats, lunch or tea-cloth, napkins, tray-cloth, pincushion-cover, sofa-pillow, or even children's large collars and dress trimmings.

We herewith give a design of center-piece for the dining-table, which may also be used as a tray-



DESIGN FOR RICHELIEU EMBROIDERY

cloth for a round salver. The materials are very fine and heavy linen sheeting, and No. 2 "La Croix" embroidery cotton. Cut from the linen a square of twenty inches, and after transferring the design, which can be done very nicely with carbon paper, trace the outlines with the floss, and work in button-hole stitch as narrow as possible, being very careful to always have the finished edge toward the bars. To make the bars, draw the thread into the work on the under side so to have no knots, and bring it up through near the edge. Stretch it across, catching it into the opposite edge and back, having two threads on which you work in button-hole-stitch free of the material. When half across, insert the needle in the stitch just made, and with the left hand wrap the cotton seven or eight times around the needle, and with the thumb and finger holding it firmly draw through the needle, thus forming the picot. The next stitch is taken over the bars and up through this loop; then finish the bar as begun. After veining the leaves in stem-stitch, press it out nicely and cut out all of the material under the bars, leaving the design in relief. For this use small, sharp-pointed embroidery scissors, and with the back of the napkin toward you, cut as close to the design as possible, taking care to not clip the bars. Cut out the center of the flowers and fill with lace-stitch of No. 40 spool cotton. Now fringe out one-and-one-fourth inches of the linen and overcast with No. 150 thread, leaving one inch between fringe and embroidery, and after careful pressing with a damp cloth the work is finished.

[The engraving shows only the design and the lace-stitched centers of the flowers. The design is necessarily so greatly reduced that it cannot show the fine button-hole stitching or the veining of the leaves.—ED.]

Convenient Writing Tablet.

Many people have a fancy for writing on the lap instead of on a table. For such this simple but very useful idea is intended: A half-inch board, nicely rounded on the edges, and a half yard of grey linen are required—size of board, ten by fifteen inches. Cut the linen three inches larger than the board; turn the edges over the side that has the corners, and tack neatly. Cut a pocket eight inches deep to hold paper and envelopes, and a narrow band for holding pens—all of which are feather-stitched in bright silk—and tack as above. The pocket is painted in poppy or other design. The corners are overhanded neatly to the outer edges, and under them is slipped a sheet of blotting paper. Once used, such a tablet will never be dispensed with. It is suitable for a lady or a gentleman, and makes a nice present.

Pineapple Lace.

The accompanying illustration shows a very pretty pattern of this favorite lace, quite unlike any we have seen elsewhere.

(Single crochet, or as it is sometimes called, mitten or slip stitch, is worked by putting the hook through a chain, taking up the thread, and drawing it through the work and the stitch on the needle; double crochet is like the preceding, except that after drawing the thread through the work you take it up again and draw it through the two stitches on the needle; treble crochet is made by winding the thread once around the hook; put through the work, take up the thread, draw through two stitches, take up again and draw through the remaining two; long treble crochet is made in like manner by winding the thread three times around the hook before putting through the work.)

For the foundation of the lace:

First row — Make ten chain, put the thread around the hook and insert in the third chain; make a shell of six treble crochet (the two chains skipped before inserting the hook will count as one treble crochet), make three chains, then shell of six treble crochet in the eighth chain; one treble crochet in the ninth chain.

Second row — Turn, make three chain, shell in shell, three chains, shell in shell; one treble crochet in the last bar of the shell.

Third row—Like the second. Repeat until you have ten rows of shells. This is the foundation.

For the pattern, work crosswise of this:

First row—Make five single chains, then a shell of six treble crochet between the second and third shells; three chain, shell of three treble crochet between the fifth and sixth rows of shells; three chain, shell of three treble crochet between the sixth and seventh rows of the shells; three chain, shell of six treble crochet between the ninth and tenth rows of shells; five chain and fasten with one single crochet in the last stitch of the tenth shell.

Second row — Work ten double crochet in the chain of five; make shell in shell; three chain, ten long treble crochet, in the space between the two shells of three of the preceding row; three chain, shell in shell; draw the thread through the last bar of the first row, and turn.

Third row—Make five chain, shell in shell; three chain, one treble crochet, between each of the long treble crochet of the preceding row; three chain, shell in shell; five chain, join to the end of the second row and turn.

Fourth row — Work ten double crochet in the chain of five just made; shell in shell; three chain,

PINEAPPLE LACE.

catch with single crochet between the first two bars of the last row; three chain, catch between the next two, and so on across; three chain, shell in shell, fasten and turn.

Fifth, sixth, seventh, eighth and ninth rows — Proceed in the same manner, catching with single crochet, in the loops of three chain, which loops grow one less in each row. Thus the fifth row has six of these loops, while the ninth has but two.

Tenth row—Ten double crochet in the loop of five chain, shell in shell; four chain, catch in loop of three of the preceding row with single crochet; three chain, catch with single crochet in the next loop; four chain, shell in shell, fasten to the last row and turn.

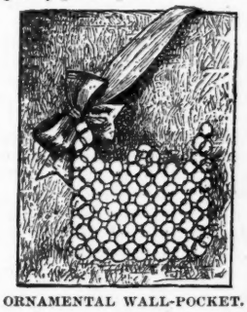
Eleventh row—Five chain, shell in shell; four chain, fasten with single crochet in the single loop of the tenth row; four chain, shell in shell; five chain, fasten and turn.

Twelfth row—Shell in shell; shell in shell, join to last row, turn.

Thirteenth row—Five chain, join in top of the last shell; five chain, join in top of the second shell; five chain, join to the last stitch of the twelfth row. Work ten double crochet in each of the nine loops of five chain down the side of the pattern, which completes one scallop. Then make a foundation for the next scallop of ten rows of two shells each, and repeat exactly, except that the little picot edge made by working ten double crochet in the loops of five chain must be joined together in the first three rows. This is done by drawing the thread through and fastening with a single crochet stitch as you go along.

A Useful Ornament.

A foundation of thin wood or heavy cardboard covered with handsome plush forms the panel on which the pretty gilded pocket shown in our illus-



ORNAMENTAL WALL-POCKET.

tration is mounted. The pocket, though much more tasteful and attractive than many elaborately made affairs, is really nothing but an iron dishcloth, one of the double kind that may be obtained for ten cents or less—or abstracted from the dishpan if one is in a hurry. One or two rings are removed from the top so that it may be extended at the upper corners as shown, and, after being thoroughly gilded, it is tacked to position by a few strong stitches around the edge and decorated by a bow and band of soft, broad ribbon. The panel is suspended invisibly by a cord at the back. It makes a pretty holder for long, fancy hairpins, bonnet-pins, scarf-pins, etc., that are so often scattered about for lack of a suitable repository, as they may be stuck in anyway among the rings, where they will be sure to be held fast. Glove and boot-buttoners may also be suspended from the lower rings, where they will not become tangled among the pins. The bright plush and ribbon, with the gilded rings and glittering pins, make a dash of glowing color on the wall which is very pleasing.

Restoring the Cutting Edge.

J. E. DUBOIS, NEW YORK.

In the barber shop yesterday the barber remarked that he must "rest that razor." Seeing my puzzled look he smiled and said, "I cannot explain the cause to you. I only know the fact that when a razor gets so it does not work well, we lay it away to rest, and in a few months it cuts as well as ever." Like the razor, men too lose their cutting edge and ought to be laid away to rest. Between our wants and their gratification, be those wants absolute or ever so few, many obstacles intervene. We must seek to overcome them, and in the struggle for existence how many wear out too soon or lose their cutting edge and fail to obtain the longed-for result, simply for want of rest!

In proportion as an investment is safe or hazardous will its results be limited or large. This is well illustrated by comparing the meager profits of the farm with those of the successful man in Wall street. If the profits of the latter were sure, farming could never attain any high position in the social scale. By what do we measure our well-being, by our riches or our happiness? Other

people measure it largely by our riches, and it depends then upon how much we care for the opinion of others. Does the result always bring the satisfaction we expected, and if in some instances we may meet with marked success, what does it prove? One isolated fact or a few of them has not settled the question. The competition that farmers need is among themselves and benefiting by each other's experience. This brings me back to my text—we must take a rest if we would not lose the cutting edge. With bodies wearied by incessant toil the brain becomes dull, its cutting edge is gone. Let the farmer and his long-tried wife take more rest and watch the result. Why should anybody know any more of our business than we do ourselves?

Fashion's Gleanings.

When the "fruit-scented wand of autumn" is waved o'er the land, Dame Fashion, like Mother Nature, decrees that richer, warmer hues shall be in vogue, and in city and country, by ocean-side, and on the mountain-tops, we see our girls blooming out in the russet-brown shades that have a tinge of red in them; the favorite old-rose tints, and above all in magenta, a color which has long been held in disfavor, but which this season has been revived, and is considered most artistic when used in combination with black. To a brunette, the deep, old-fashioned crimson is particularly becoming, and for brightening a black lace or net dress nothing can be more effective than a sash of broad, magenta ribbon, arranged in long loops and ends at the back, a crimson stock about the neck and a touch of the same gay hue peeping from beneath the wrists of the sleeves.

The mohairs and alpacas so popular all summer have opened the door for poplins—and that stiff, rich fabric is likely to be much used for plaited skirts and simple round basques. Striped poplins are most in favor, and the black and white ones are also frequently trimmed with revers, cuffs, stock and girdle of magenta satin.

Sleeves are often of a contrasting color and different material from the gown, and white wool frocks that can be worn late into the fall, are lovely with full sleeves of blue, green, old-rose, or cardinal velvet. The white skirt is made perfectly straight, while the round Empire waist is slightly gathered on the shoulders and displays a V of the velvet on both the front and back. A long sash of the velvet also hangs straight down the back and is heavily fringed on the ends.

Pretty, striped flannels, light in weight and smooth as cloth, are excellent for country costumes that can be worn all day, and are rather nicer than tennis-dresses. They are made with very full, kilted, or accordion skirts, while the waist is either a blouse, or a plain round bodice. Cuffs and a collar of silk, matching one of the stripes in color, and a belt, form all the trimming.

Coarse fish-net—a silk net woven after the fisher's-net pattern—is largely used for drapery over silk skirts, and for folds and sleeves on waists, as it is very inexpensive. It is quite pretty for evening wear, but tears easily and is not nearly so serviceable as Brussels net or Chantilly lace.

A tea-gown, to be worn only at home, is a luxury which no woman should be without. A pretty and dressy one may be made in the following style, of challis, of cashmere, or even of silk, if one wants to be very smart. Cut it in princesse shape, fitting the figure closely. In the back allow sufficient drapery to give an air of graceful fullness, and let it trail a little on the floor; but have the front perfectly smooth and closed with small, white, crochet buttons. On each side of the closing down the entire front place jabots of lace and between them many loops of ribbon, the shade of the gown. Also, finish the neck and wrists with becoming frills of lace.

A short coat of tan cloth is a nice garment to wear over light dresses on a cool day, or for driving; and these are made to fit snugly at the back and sides, but open and flaring in front to show the bodice beneath. It is faced with white moiré, and the revers, pocket-flaps, cuffs and collar are also of the watered silk.

Bustles are extremely small or entirely abandoned, while even the steel extenders are often omitted from skirts. The latest reports from Paris are that our autumn gowns are to have a slight drapery in long, statuesque folds, and are to be trimmed with a flounce all around the underskirt. Sleeves will be more or less prominent about the arm-holes, and belts will continue in favor, as well as a great deal of gold and silver braiding and embroidery.

Young women tie their hair in a low, catogan loop and place a bow of black ribbon above it, or else they wind it in a close, braided coil, and wear side-combs of steel, tortoise-shell, or silver.

Round "pork-pie" turbans are fashionable with low hair; as are also sailor hats, and it is a novelty to remove the straw crown of the latter and replace it with a higher one, covered in folds with the material of the tennis- or boating-dress. A sea-gull, swallow, or blackbird placed at the back, head downward and wings extended, forms a stylish trimming, but one that we would not advocate.

Gay little, embroidered handkerchiefs of *mousseline de soie* are dainty additions to a pretty toilette, but they cost a great deal. A clever girl, however, will make them for herself, by buying a piece of silk muslin of any desired color, dividing it into squares, scolloping it round the edge, and then embroidering tiny sprigs over it, in various shades of washing silk. White, black, brown, red, dark blue and mauve handkerchiefs are all used and considered very smart.

Frail Tyrants.

A. C. MONTCLAIR.

All the tyranny in the world is not exercised by crowned heads or by the owners of serfs and slaves. There is a class of women who live on the excitement of shopping. They are generally small purchasers, having but small means. They attend all the openings of millinery and suit departments. They scan the Sunday papers for startling advertisements, and the poor clerks have a weary time of it on Monday. These shoppers saunter from counter to counter, and goods are unrolled, laces unfolded and heavy boxes of silks and velvets taken down to gratify an idle curiosity. Meantime, the poor shop-girl with aching back and limbs, with the muscles of her arms strained almost beyond endurance from the lifting of these boxes which she must stand on tip-toe to reach, and half poisoned by the bad air which she has breathed for so many hours, is expected to be gentle, courteous, and obliging. Stores close at six o'clock, but did you ever enter a large store in New York at about that hour, and see how the clerks were engaged? The counters are heaped with tossed and rumpled goods that must be refolded and laid away.

I made a small purchase at the decorative silk department of one of the large stores on Sixth Avenue recently, and while waiting for my goods and change witnessed the style of shopping to which I have referred. These silks are very delicate, both in color and texture, and are kept rolled on wooden cylinders. There was a large selection of beautiful and recently imported fabrics, very attractive to the eye. Each lady who happened to be passing stopped and examined piece after piece, passing on with "Very pretty, indeed." One purchase of half a yard was made. I asked the shopman, who after each upheaval was patiently rolling up the goods, if that was the general practice of ladies on shopping excursions. He replied that it was almost universal among those who did not intend to purchase. "Ladies will come in here just before the hour for closing," said he, "and toss about piles of goods that it will take until nearly seven o'clock to adjust. We find no fault, where they are really looking with an intent to purchase, if they find an article that suits them, but I have unfolded dozens of portieres, and unrolled hundreds of rugs, for women whom I knew could purchase neither."

Children are allowed to handle articles, for the soilure of which a clerk is blamed or fined. It is a cruelty to humanity at large to take children into large and crowded stores while you are making purchases. They are unhappy themselves, and they annoy both clerks and customers.

Now, my sisters, there is an opportunity on a shopping excursion for the practice of all the minor, and many of the cardinal virtues. The beauty of the Golden Rule never comes out stronger than at such a time. I have always found clerks of both sexes quick to respond to a word or act of sympathy. But I have only shown you the dark side of the picture. I saw a grand lady wearing the badge of the King's Daughters extend her hand to the pretty, tired-looking girl who had waited on her patiently through a tiresome purchase, saying, "Thank you for having been so kind and patient with me," and I saw the eyes of the girl brighten, and her face beam with pleasure. I heard another lady say to a clerk who from time to time passed her hand over her brow, which wore a look of pain, "You seem to have a headache,—I am very sorry;" and the quick, responsive look of gratitude seemed to chase away the look of suffering. Perhaps for just such little acts of thoughtfulness, it may one day be said to you, "Inasmuch as ye have done it unto one of the least of these, ye have done it unto Me."

How to Paper a Room.

ECONOMIST.

There are two ways to paper a room. One is to hand the job over to a paper-hanger, and the other to do it yourself. The latter was what I did—from necessity, not choice — for I am convinced that I was born to be a drone, although circumstances have always compelled me to be a worker. We have a new and one of the prettiest of cheap flats. Newness has its advantages in the shape of cleanliness and freedom from roaches. One of the disadvantages is the bareness of its poorly-finished walls, which the landlord will not calcimine, because he intends to paper, and which he will not paper because he must wait until the walls are settled. Our walls were thoroughly settled, so for want of a better excuse the landlord pleaded poverty; said he couldn't afford it. He promised, however, to pay the cost of materials for two rooms—not to exceed $3 per room—if I would furnish the labor. Had I told him that I did not intend to employ a professional, he might not have been so willing.

My first step was to go to a paper-hanger's where I had seen pretty paper (not one of the larger stores, where small orders are less welcome), and ask him if he would tell me how to do the work if I bought the materials of him. This he good-naturedly did, and I sincerely hope I shall not spoil his business by imparting this information to the readers of the AMERICAN AGRICULTURIST, many of whom live in localities where such labor is scarce and costly. Of course I did not attempt the ceiling, contenting myself by giving that a coat of ordinary whitewash, colored a pale blue by adding a little indigo. Be sure to get the genuine article.

For a room about fifteen by fifteen feet, you will require at least a gallon of good flour starch or paste. The professional hangers make this by pouring boiling water on the flour; it will be safer for an amateur to mix the flour first with cold water, and then add boiling water slowly until it thickens and becomes of the proper consistency. You will want a step-ladder, a kitchen table, and a clean whitewash brush. My obliging friend lent me the latter. Provide yourself also with a rule, a lead-pencil and a good pair of scissors. Take a roll of paper in your hand, mount the ladder, hold the paper against the ceiling, and let it unroll until it touches the floor. My husband acted as assistant, and held this firmly in place until I was certain of the right length. I then laid it on the table, measured straight across with my rule, and cut one length off. Cut all the other lengths by this, and carefully match the flowers or figures at the top of each, laying aside all the small pieces cut out for the spaces over doors and windows. Trim off the unprinted edge on one side, leaving the other to lap under the next width. Lay the paper face down on the table, and brush over the entire length with the paste. Hold it double—the right sides together—and apply to the wall, letting down the lower half as you work, and smoothing down the middle, and from the middle to both sides with a soft cloth or a turkey's wing. The professionals use a brush which comes for the purpose, and is grasped in the hand as you hold a clothes-brush. I used a hat-brush of very soft bristles, which has been in the family for generations. When the whole wall is covered, put on the bordering in as long a piece as possible. If you have not a good eye for shades and colors, get someone who has to select your paper. Whatever color you choose, let the design be simple—so simple that should illness keep you a prisoner in your room, you will not weary yourself by trying to trace the design, or count the figures. Light paper forms a better background for pictures than dark. I have chosen one with a cream ground, with clusters of pink blossoms flung carelessly over it, as if dropped by accident.

If your walls have been previously papered, you must proceed somewhat differently. Apply

warm water with a brush, letting it soak in until all the paper can be easily removed. It must then be sized by brushing over with a weak glue. Break up the glue into a disused tin or iron vessel, or a large stone pot; pour on boiling water, and set within a larger vessel of boiling water until all is dissolved, stirring often. An old whitewashed wall must have boiling-hot, strong vinegar applied with an old whitewash brush. This will remove the lime. If this were not done, the paper would not adhere.

How the Fairy Taught Dick to Read.

ALICE CHITTENDEN.

"T-h-o-u-g-h-t. What *does* that spell, I wonder? Oh, dear; how I *do* hate learning to read," and six-years-old Dick Harold knitted his brows into a funny little frown, and bent again over his dogs-eared First Reader.

Dick was a delicate, gentle, little boy, with eyes like wood violets, and long, golden curls, which together with his pretty ways had gained for him the name of "Little Lord Fauntleroy" among the friends and relatives of his family. The nearest school was two miles distant, and "kindergartens" were unheard of in that part of the country where the Harolds lived, so Mrs. Harold, who was a very busy woman, had always been Dick's teacher.

"I WISH THEY WERE REAL FAIRIES."

Dick did not throw his book into the furthest corner of the room, and cry, when he could not pronounce a word, as I have known some little boys to do. He studied on bravely for a few moments, and then in a queer little fashion of his own began to talk to himself.

"I wish there were *real* fairies now-a-days to teach little boys to read. I wonder how a fairy *would* teach a boy to read. I wonder if he would have to study. (Dick was always wondering.) I '*suspose*' she would make it so easy for him that he wouldn't know he was studying."

And so Dick rambled on, while Mrs. Harold, who was sewing in the next room, sat listening with an amused smile on her face. Then she seemed to be thinking deeply, and after a short time, murmuring, "What a nice plan," she sat down at her desk and wrote a letter on her type-writer.

The next morning a letter plainly addressed in type-written capitals lay beside Dick's plate at breakfast.

"Oh, Mamma," shouted Dick, "a letter from Auntie May! But how funny, there is no stamp on it, and it says,"—reading slowly from the envelope —"To the Little Boy who Wants a Fairy Teacher;" and Dick's eyes grew bigger and bigger with each word.

With eager hands Dick opened the envelope, and read his letter aloud:

"MY DEAR LITTLE BOY:—I am a fairy. My name is Learning. I heard you wishing for a fairy teacher. Now that is just my business. Whenever a little boy really wants to learn to read, I help him. Would you like to know how I do it? I send him a letter every day. In this letter I write a pretty story about a boy or girl, or a cat or dog. The little boy, who is perhaps a rather lazy little boy, who hates *learning* to read, although he wishes to *know* how, reads this letter himself, because he can get no one else to do it for him, and so in a short time he learns to read nice books for himself.

"The little boy to whom I am going to send this letter must read it twice before he will get another.

"In my next letter I will tell you a story of a cat and her three kittens. THE FAIRY LEARNING."

Whatever else the fairy had done she had spoiled Dick's breakfast, and Mrs. Harold wished the fairy postman had been an hour later.

Busy Mrs. Harold was busier than ever trying to answer Dick's questions, and when he had no one else to talk to he did an endless amount of talking to himself. The last thing he said before he fell asleep that night was, "*I wish* I could *see* that fairy."

Very early the next morning, a little, tumbled, golden head poked itself very quietly into Mamma's room, and said very softly, "I dressed myself; may I go down stairs and see if the Fairy has sent me another letter."

But to his dismay there was no letter on the table, and poor Dick, who had never thought of doubting either fairies or real people, felt very much as older persons feel when they learn for the first time that a friend can be untrue. After breakfast he went for his Reader to say his lesson to Mamma, who had always taught him to work first and play afterward, when there! right on top of the Reader, lay another letter from his fairy teacher. This letter began:

"I heard you reading my letter over many times yesterday, and I am so pleased with you that I am going to grant your wish. As soon as you can read for yourself the books which I shall send you, you shall see me, although at the time I show myself to you no one else will be able to see me but industrious little Dick Harold."

Then followed the promised story, which Dick thought even nicer than any which had been read to him from *Babyland* or *Young People*. It was read and re-read throughout the day whenever he could find a listener. Much to Mrs. Harold's surprise too, he more than once brought his reader, and begged to be allowed to read a lesson, "for you see," said he, "I want to see my fairy as soon as ever I can." Dick always spoke of his teacher as "my fairy" now.

True to her word every day brought the fairy's letter, and Dick never grew tired of reading the wonderful stories in them. One day a ride to town with Papa caused Dick to forget to read his letter twice, and he was broken-hearted the next day when no letter came.

DICK'S FAIRY.

Not twice only, but many times, did Dick read over this wonderful letter. He carried it upstairs to read to Grandma, who never left her room. He never forgot Grandma. That was one of Dick's nice ways. He was kind and gentle to old people. Everything, and everybody, liked Dick. If he was ill in bed for a day, Tiger, the great, handsome house-cat, spent most of the day on the foot of his bed. Flora, the dog, brought her puppies as soon as their eyes were open and laid them at Dick's feet. Everyone who came to the house that day had to listen to Dick's wonderful letter, and, before evening there was not a word in it that he did not know by heart.

After a week Dick found with the fairy's letter, a brightly-colored picture book full of "Jingles."

"I think my sister, the Fairy Industry, must be helping you," said this letter. "Each week I shall send you a book, and each week the book will be a little more difficult to read than the last one, until, when you can read the 'Swiss Family Robinson' quite easily, spelling out only the very hardest words, you shall see THE FAIRY LEARNING."

Never did a little boy learn to read so rapidly, or acquire a library in so short a time, as this Dick Harold with his fairy teacher. She seemed to know just what sort of books would please a little boy. The dear old fairy stories of "The Three Bears," "Cinderella," "Puss in Boots," "Jack the

Giant Killer," and many others, in large type and easy words, with bright pictures, were all sent to this fortunate little boy by his kind friend. Once when the book had a number of hard words in it, a delightful letter came with it which said:

"If you only could read and speak the language of the fairies, I could send you far nicer books than I can find in the country of the 'grown-ups.' Although these are fairy stories, they are written by the people of your country, and some of them are very stupidly told for little children. So you must just be patient with the long, hard words and spell them out carefully."

When two months had elapsed Dick had not only read all the books the Fairy had sent him, but the Second and Third Reader as well. If Mrs. Harold had been obliged to listen to all this reading, she could scarcely have found time for anything else, but Dick would read to anyone. To Grandma, to Delia, his good-natured nurse, to big brother Jack, when he came home from boarding-school on Friday night to stay over Sunday, and to Papa when he took him on his lap at night for what used to be his bedtime chat. Mrs. Harold said she thought the fairy did not deserve all the credit of teaching Dick to read, for she had so many assistants.

Dick had given up guessing who the fairy could be. Auntie May had declared that she had nothing to do with it, and that if she were a fairy at all her name would be "Frolic" and not "Learning." He was so used to hearing Mamma's type-writer clicking away for many hours in the day that he never seemed to think Mamma might be the fairy.

He could read quite well now in brother Jack's old "Swiss Family Robinson," when one day, his letter, which was very short, said:

"MY DEAR LITTLE DICK:—You can read so well now that this is to be my last letter to you. You shall see me to-day. I have grown so fond of you that I think I shall ask you to let me stay and live with you always. Go up to the nursery. You will know me by the new 'Swiss Family Robinson' which I will hold in my hand, and which will be the last present to you from

THE FAIRY LEARNING."

Dick did not "*go*" upstairs, he *flew* up. For once he entered the room less like a "Little Lord Fauntleroy" than like an ordinary boy.

There in the big arm-chair sat Mamma, in her prettiest frock and cap, and with a beautiful book in her hands.

"Oh, Mamma," cried Dick as he sprang into her arms, "I knew there couldn't be any *real* fairies, but I never thought of *you*."

For Young Mothers.

The care of their infants is a subject of the greatest importance to mothers. A subject which alas! few are prepared to cope with. Perhaps the only time in her life when a woman is thankful for having been born an elder sister is when she finds herself with her first baby in her arms. Happy is she if she can rely on the experience gained by the care of younger brothers and sisters under the guidance of a judicious mother.

Especial care is required in hot weather, and a few simple rules in regard to nursing and feeding, will, if followed carefully, save many lives. In the first place, bear in mind that over-feeding does more harm and produces more stomach and bowel troubles than anything else. Every two hours is often enough for a child a month old—every three hours at three months, and six times in twenty-four hours when the child is six months old.

At this latter age half barley water and half milk with a little salt and sugar is an excellent food unless the baby is very costive, when give oatmeal water instead of barley. To make either of these, boil a teaspoonful of powdered barley or fine oatmeal in half a pint of water with a grain of salt for fifteen minutes; strain and mix with half as much milk; add a lump of white sugar, or enough to make it as sweet as its natural food, and give it lukewarm from a nursing bottle. It is a mistake to pour the warm food into a cold bottle, as this often cools it too quickly. The better plan is to pour the cold food into a cold bottle and heat both by placing them in warm water. Test it yourself before giving it to the infant. The necessity of extreme care as regards the cleanliness of the bottle, tubes and mouth pieces cannot be too much insisted upon. Keep all in cold water, to which a pinch of carbonate of soda has been added, when they are not in use; rinse them out the moment the baby has done feeding, and do not let the bottle stand with the food in it from one feeding time to another.

Give the babies plenty of air as well as plenty of light and sun. Wash them at least once a day; that is, bathe them all over once in twenty-four hours, and wash the hot little face, hands and neck many times. See that the crib or bed is aired every day. Lay the mattress in the hot sun, turning it over once, and hang sheets and blankets where they can be thoroughly sweetened.

"Well children are always happy" is a maxim that works both ways. It is of the utmost importance to his health as well as his character that you start right in the matter of government, and that you not only start right, but right away. The spoiling process generally is well begun before mamma is well enough to have full sway, but when she does take the reins in her own hands, let her at once take a firm grip on them. When the little tyrant once learns that as soon as he cries you will hold him, your hands and lap will seldom be empty. From the hour of his birth he should be accustomed to take his nap alone in his crib, and not nestled like a kitten by his mother's side. If this is not faithfully persisted in he will soon refuse to sleep anywhere except in his mother's warm and sheltering arms, and will protest against being laid in his crib after nursing, with all the increasing strength of his baby lungs. Be firm and let him "cry it out" for a few times and your supremacy will be established. Be sure before you lay him down to take his sleep that he is neither in want of drink nor food (especially do not forget the "cup of cold water," for the want of which children so often suffer), that no pins prick or irritate him, and that his bandages are not too tight, and then leave him to his own resources.

Fine, soft and thin all-wool flannels are the best for infants' wear through the hot weather. Let the band and shirt be of this material, and the outer clothing may be as light as the weather seems to demand.

Tried and Found Good.

Apple Pudding.—A very nice pudding is made from stale cake and stewed apples, either fresh or dried. Crumble the cake and put a thick layer in a buttered pudding-dish, add a layer of stewed apples and add another of cake crumbs. For a quart dish of this mixture, beat the yolks of two eggs and the white of one with a pint of milk and three tablespoonfuls of sugar; pour over the cake and apples and bake thirty minutes. Draw to the oven door and cover with a meringue made from the white of the egg beaten with sugar.

Deviled Fish.—Half a pound of any cold, boiled, flaky fish; shred fine. Mix one tablespoonful of flour with a little milk and stir it into a gill of boiling milk; add a dessertspoonful of butter, and remove from the fire. Pour over the fish; add also two yolks of hard-boiled eggs mashed fine, a tablespoonful of finely-minced parsley, and salt and cayenne pepper to taste. Fill clean scallop shells with the mixture, brush over with beaten egg, cover with crumbs and brown.

Rolled Beefsteak.—Make a dressing of a cup of fine bread crumbs, an ounce of minced salt pork, sage, salt and pepper, and mix well with a tablespoonful of melted butter. Lay two pounds of round steak on a board, trim off the fat, and with a chopping-knife gash the upper surface, but do not cut through. Spread the dressing on this side, roll up like jelly cake and fasten with skewers. Lay over a few thin slices of salt pork and lay in a saucepan a little chopped onion and carrot, cover with a pint of water to which has been added salt and a little vinegar. Simmer until very tender, probably three hours. Lay in a baking-pan, dredge with flour, and brown quickly. Strain and thicken the gravy and pour over the meat.

Raspberry Pie.—Line a pie-dish with a good paste and fill with raspberries sprinkled with sugar. Dredge with a little flour over the middle layer and bake half an hour. Eat cold covered with a layer of whipped cream.

Carrots with White Sauce.—The small, French carrots, or larger ones sliced, are delicious if simmered until tender in salted water, and served in a white sauce, made by adding a spoonful of flour wet with cold milk to a cup of boiling milk. Stir in a lump of butter, season to taste, lay in the carrots and let them get hot through.

Shoulder of Lamb.—A shoulder of lamb cooked as follows is a very cheap and excellent dinner: Have the butcher cut out the shoulder-blade, and the first length and half the second of the foreleg, taking care not to mangle the meat. Stuff with a forcemeat made of bread crumbs with one boiled and mashed onion, seasoned with salt, pepper, and sage. Truss it up something in the shape of a duck and sew shut. Lay in a dripping-pan on a few sliced vegetables, pour over a gill of hot water, and bake twenty minutes to the pound. Garnish with new, small carrots, onions and new potatoes; strain and thicken the gravy, pour it over all and serve.

Sweetbreads.—Farmers frequently kill their own calves and sell them to a country butcher, who does not know the value of sweetbreads, for which a city customer must pay from forty to seventy-five cents a pair. They are easily cooked, and most delightful when prepared properly. Soak them in a bowl of cold water for an hour; pull off the skin and fat; parboil for twenty minutes in water with a little salt; throw in cold water for five minutes and then press between two plates with a weight on top until perfectly cold. Dip in beaten egg and bread crumbs, and fry in hot dripping. They are especially nice with green peas served in a circle around them.

Useful Household Hints.

Bronzing.—Many articles about the house may be brightened wonderfully by the application of bronzing. If you depend on the liquid bronze sold in small bottles you will find that it costs considerable to cover much surface, but if you buy bronze powder such as gas-fitters use on pipes, and mix it with a size of two parts linseed oil and one part coach varnish, you will find that a great deal may be done at little cost. To use it, pour some of the size into a shallow dish,—a sauce plate is good,—being sure to shake it up well first, so that the oil and varnish will mix. Put some of the powder into another plate. Dip your brush in the size, and mix up a little of the powder at a time. It should be thick enough to form a good body, and must not run. It dries rapidly. If the luster is not enough after once going over the article, give it a second coat. Old frames can be made to look like new in this way. It can be applied to metal or wood. Anyone who can use a brush can apply it satisfactorily.

How to Sweep.—Some persons advise scattering small bits of wet paper over the carpet, to take up the dust when sweeping. This may answer well where a broom is used, but if you use a carpet sweeper, you will find that the paper does not always come off the carpet readily. It hugs down so closely that the sweeper slides over it without being able to take hold of it. We have found nothing so satisfactory as bran and salt, well moistened but not wet. The bran takes up the dust, and the salt seems to freshen up the colors in the carpet. The sweeper will take up every particle of it without any trouble.

Carpet Sweeper.—Every woman who has a carpeted floor to sweep ought to have a carpet-sweeper; for two reasons: It saves a great deal of hard work, and it does its work better than a broom, because it takes up the dust, and does not distribute as much about the room as it takes up, thus obliging one to go over everything and "dust" it. And it deserves use for another reason: it saves the carpet. Sweeping a carpet with a half-worn broom wears it out more than all the treading-on it gets. If you use bran on the floor when you sweep the corners of a room out with the broom, and run a carpet sweeper over the rest of the floor, it will not be necessary to do much dusting. The children can run a carpet-sweeper well long before they can be trusted to do a good job with a broom. Get one and let them help you along with your daily work.

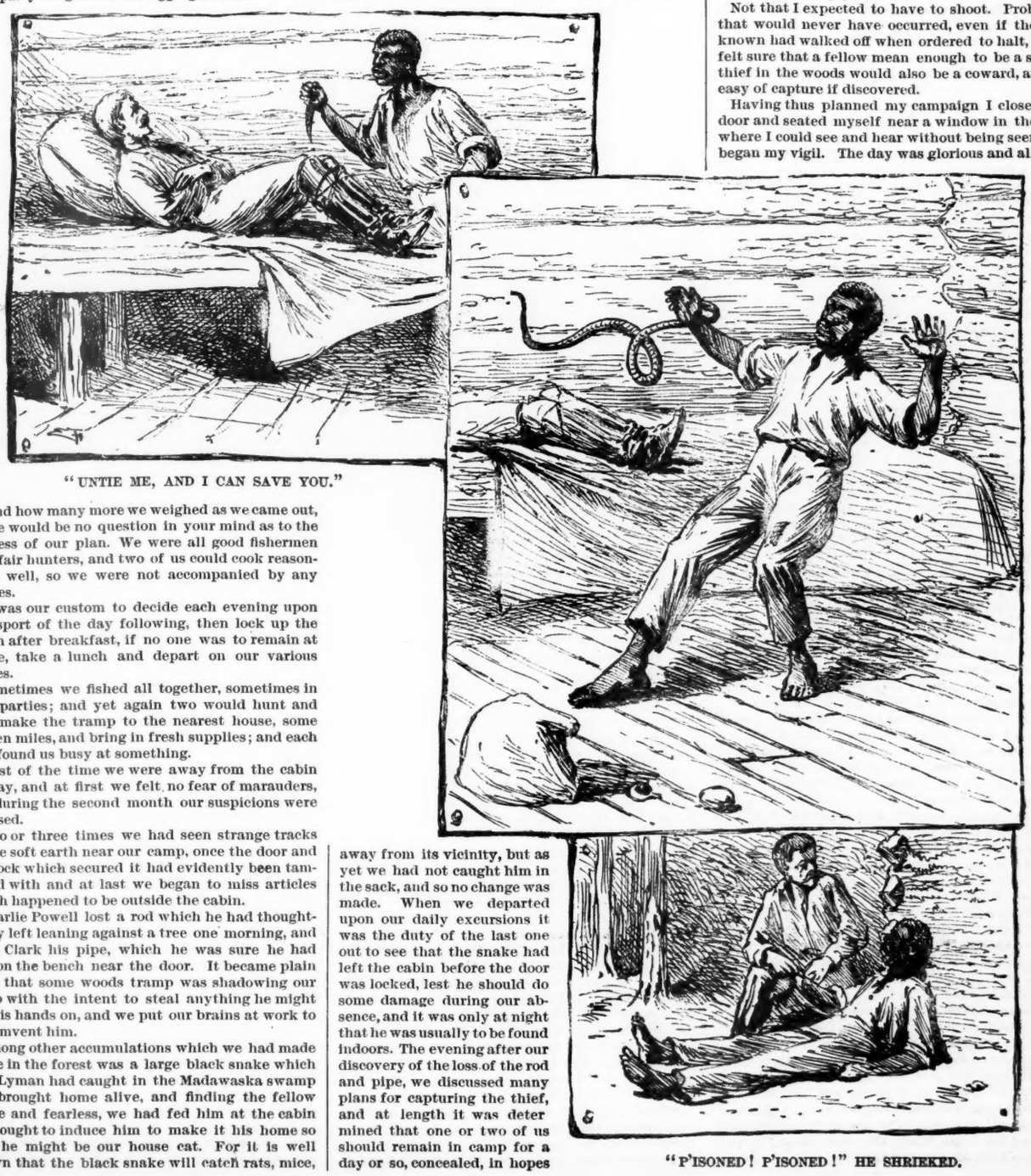
An Ornamental Lamp-Shade.

The fancy lamp-shades, if at all pretty, are so expensive to purchase that we all welcome a new design. A fourteen-years-old girl of our acquaintance has just made a very cheap and effective one. Buy a wire frame, of the size to fit your lamp, and cover it with coarse milliner's-net. Take a piece of imitation lace of any pretty design, and measure loosely around the bottom of the frame the width of the lace from the bottom. Then allow about a quarter of this for fullness, and gather it slightly on a piece of ribbon of such a length as will fit snugly around the frame at this point. The ribbon is then gathered to fit the top of the frame, and a narrow piece of lace fulled around to stand up. A bow of ribbon is placed at the side, and a fringe of embroidery silk finishes the lace at the bottom.

Wriggles and the Thief.

MAJOR HAMILTON.

Last summer with three friends I spent some months among the Adirondacks camping in a cabin which we had built near Buck pond on the head waters of the west branch of the St. Regis. Our purpose was to gain health by a vacation in the woods, and if I should tell you how many pounds the party weighed in the aggregate when we went in and how many more we weighed as we came out, there would be no question in your mind as to the success of our plan. We were all good fishermen and fair hunters, and two of us could cook reasonably well, so we were not accompanied by any guides.



"UNTIE ME, AND I CAN SAVE YOU."

It was our custom to decide each evening upon the sport of the day following, then lock up the cabin after breakfast, if no one was to remain at home, take a lunch and depart on our various routes.

Sometimes we fished all together, sometimes in two parties; and yet again two would hunt and two make the tramp to the nearest house, some eleven miles, and bring in fresh supplies; and each day found us busy at something.

Most of the time we were away from the cabin all day, and at first we felt no fear of marauders, but during the second month our suspicions were aroused.

Two or three times we had seen strange tracks in the soft earth near our camp, once the door and padlock which secured it had evidently been tampered with and at last we began to miss articles which happened to be outside the cabin.

Charlie Powell lost a rod which he had thoughtlessly left leaning against a tree one morning, and Fred Clark his pipe, which he was sure he had laid on the bench near the door. It became plain to us that some woods tramp was shadowing our camp with the intent to steal anything he might lay his hands on, and we put our brains at work to circumvent him.

Among other accumulations which we had made while in the forest was a large black snake which Dan Lyman had caught in the Madawaska swamp and brought home alive, and finding the fellow docile and fearless, we had fed him at the cabin and sought to induce him to make it his home so that he might be our house cat. For it is well known that the black snake will catch rats, mice, squirrels and other small deer, much as the cat does, and many of the reptiles are domiciled in Southern homes for that purpose.

Although Powell and I had at first seriously objected to a snake as a boarder, the other boys laughed at us so much that we gave in and allowed Wriggles, as Dan had named him, to crawl about unmolested, and in a month's time he would come at call to be fed milk or eggs, of which he was very fond.

Usually at night he coiled up in one corner of the cabin, although several times when it was chilly I had found the rascal under the stove and driven him out. He was as partial to heat as a dog, and Lyman had at last made a box for him just inside the door and filled it with dry grass, where latterly Wriggles had slept at night. Several times we had heard him moving about the floor in the dark, but although he occasioned a great deal of joking as to what would occur if he should invade our bunks, thus far he had not attempted such familiarity.

We kept our eggs in a paper flour sack in one corner of the room, and it was evident that Wriggles knew it, for several times he had been driven away from its vicinity, but as yet we had not caught him in the sack, and so no change was made. When we departed upon our daily excursions it was the duty of the last one out to see that the snake had left the cabin before the door was locked, lest he should do some damage during our absence, and it was only at night that he was usually to be found indoors. The evening after our discovery of the loss of the rod and pipe, we discussed many plans for capturing the thief, and at length it was determined that one or two of us should remain in camp for a day or so, concealed, in hopes that when our visitor next called we might be able to lay hands on him —and drawing lots for the first day's guard mount it fell to me, much to my satisfaction.

Of course the boys offered me all sorts of advice as to what to do and how to do it, Lyman even suggesting that I should climb a tree and watch from its branches all day; but I scoffed at their notions and promised them I had a much better plan of my own safely in my head.

Morning dawned bright and clear, and as my companions prepared for a fishing trip and visit to Long Pond, distant three miles, I half regretted that I must pass the day alone and at home. However, they soon got off and then I began to arrange matters for the success of my plan.

First I left the key in the padlock, as if by accident, and took everything of value within doors.

Then I prepared the upper bunk so that I might lie in it hidden behind blankets, apparently tossed there carelessly, and see all that went on in the cabin. I proposed to conceal myself there, and when the thief entered, as I felt sure he would, and began to pack up his plunder, to capture him at the muzzle of my gun.

Not that I expected to have to shoot. Probably that would never have occurred, even if the unknown had walked off when ordered to halt, but I felt sure that a fellow mean enough to be a sneak thief in the woods would also be a coward, and so easy of capture if discovered.

Having thus planned my campaign I closed the door and seated myself near a window in the loft where I could see and hear without being seen and began my vigil. The day was glorious and all Nat-

"P'ISONED! P'ISONED!" HE SHRIEKED.

ure rejoiced in the fullness of ripened summer. The sunlight warm and bright fell softly upon mountain, lake and forest, the birds sang, the waters rippled and the leaves whispered one to the other in the trees. The air was balmy and filled with the balsamic odor of the woods, the silence was broken only by sweet, restful sounds, and after a little I found myself half inclined to nap.

This would never do, and so I cautiously crept to a lower window, and having surveyed the approaches undid the door and stepped forth.

Listen as I might I could hear no sound of human presence, and the little scouting which I did through the near-at-hand timber resulted in no discovery but that of a hedge-hog scuttling up a tall pine in terror.

I returned to the cabin and again closed the door behind me. Probably during the time it had been open Wriggles had entered, but I did not see him, nor did he make himself known when I came in.

A little further watching from the windows, and drowsy and half disgusted with what seemed to be a fruitless guard, I climbed into the bunk, took a book and began to read.

I may have read a page, perhaps a chapter, but before long my heavy eyes closed, the delicious languor of the wilderness overcame me, and, all unprepared, I slept.

How long, I know not, doubtless an hour or more, when a sudden noise, like the falling of a heavy body, awoke me with a start, and I saw with wonder that the door was wide open.

Surprised and yet dazed from my slumber I sought to rise when to my intense amazement I found that I was bound hand and foot with a heavy cord; and even as I began to realize that I was the captive, not the captor, a harsh laugh broke upon my ears, and turning I saw standing near the cupboard in the corner a brawny negro!

"Ha! Ha! Massa! You done wake up? Don' rise yit. Dar's no hurry. When I gits what I want I'll go 'way an' ye kin sleep a spell more 'till yer frien's come home. They'll ontie ye. Don't rise yit, massa!" and again he laughed long and heartily.

"You villain!" I cried, "if you don't loose me this instant and clear away from here I'll have you in jail! What do you mean, coming here and tieing me in this way? Undo me!"

"What I mean?" he grinned; "I mean to clean dis yer cabin of all de stuff I kin carry, dat's what I mean. And I won't do ye no hurt ef ye keep still, but ef ye aggeravate me,—look out, I's a bad nigger, I is!"

The reprobate shook his fist and glared at me in such a manner that I believed him.

"See here," said I, "let me go and I will give you what you want if you'll promise not to steal any more. That's fair. Let me go."

He laughed again grimly.

"I won' steal no mo' after dis time, massa, I'll promise ye; 'case why? I'm goin' to tote away ebery ting I want dis trip! An' I tell ye agin, don' ye talk to me no mo'!"

The man was growing angry and I deemed silence but prudence on my part, bound as I was.

The fellow was ransacking every portion of our camp and had already gathered a goodly plunder, which he was stowing in a pack basket intending to carry it away upon his back! He worked hastily, and I saw that he was much worried. Should my comrades return he would be surely caught, or should I work free from my bonds before he had gotten beyond my reach, I might follow, obtain help and arrest him.

These dangers he evidently appreciated, and so lost no time in his rascally work.

Already he had taken what he could find of provisions, our tea, coffee, sugar, baking powder and a few cans of condensed milk, when glancing about his eye fell upon the egg bag in the corner.

Striding to it he thrust his hand quickly into its open mouth to discover its contents, but no sooner had he done so than with a wild yell of horror he sprang back, his arm extended, and hanging fast to his wrist, where its fangs were imbedded, a great black snake, Wriggles!

"Pisoned! Pisoned!" he shrieked, while his face grew ashen hued with terror. "I'se snake bit an' pisoned!" and shaking his arm as if it were the limb of a tree, he succeeded at last in flinging the reptile from him into a corner, where he writhed and twisted and played his forked tongue, showing all the signs of snake anger.

"O Lord! O Lord! I'se gwine to die, shore!" moaned the negro, while the dark blood fell drop by drop from his bitten wrist.

I saw my chance and seized it.

"Untie me and I can save you!"

With a cry of joy he sprang to my side, and pulling a sheath knife from his belt he cut the cords which bound me.

"O, massa! Good massa! Sabe me ef ye kin an' I'll swar on de Bible neber to steal no mo'! O, massa! Sabe me. I feels de pison creepin' tro' my veins!"

"Give me that knife," said I, "and hold out your hand."

With a groan the fellow obeyed, and I cut a deep gash in the wrist where the snake's fangs had been, from which the blood ran in a little stream.

"Now suck that wound and draw all the poison out," I commanded, "and quick, too, while I tie your arm above here."

Most gladly he obeyed, while I bound a ligature lightly above his elbow. In fact I treated the bite exactly as if it had been given by a venomous instead of a harmless snake, and in thirty minutes had the negro's hand and wrist so bandaged and his arm so lashed that he was practically disabled. Then I commanded him to go outside and sit on the ground with his back against the cabin while I prepared something for him to drink to antidote the poison!

He obeyed, and such a mess as I fixed up! I had decided not to arrest the rascal but to take his punishment into my own hands, and most thorough I made it.

I mixed for him at least a quart of raw eggs and pepper, which I forced him to drink, followed by a glass of strong salt and water!

The result may better be imagined than described. Suffice it to say that when the boys returned at about five in the afternoon the thief was just able to walk, his fright and his treatment having made him a very sick man; and after a thousand promises never to steal again, to return the articles already taken and never to forget me and my kindness in saving his life, we allowed him to depart, a sadder if not a wiser man.

Doubtless a night's sleep renewed the evil in him, for he did not return the rod and the pipe, but we were never troubled by him again, and Wriggles was given one raw egg a day for his meritorious service during all the remainder of our stay in the woods.

The Great Horned Owl.

The Great Horned Owl (*Bubo Virginianus, Bonap.*) is one of the commonest species in the country, from New England to the Gulf of Mexico. It is large and powerful, the female being from twenty-one to twenty-four inches in length, and the male from eighteen to twenty-one inches. It has long, erectile ear-tufts of feathers, which give it a peculiar "horned" aspect. In color the upper part of the head is dark brown, mottled with light brown, the ear-tufts of the same color margined with brown; face brownish-red with a circle of blackish-brown; upper parts undulatingly banded and minutely mottled with dark brown and reddish fulvans. The wings and tail are light brownish-yellow, barred and mottled with dark brown and light-reddish fulvous; upper part of throat lightish-red spotted with black, a band of white across the middle of the neck; its lower part and the breast light yellowish-red barred with deep brown, as are the lower parts generally; tarsal feathers light yellowish-red barred. The Great Horned Owl lives retired, and it is seldom that more than one is found in the neighborhood of a farm after the breeding season. But as nearly every detached farm is visited by one of these marauders they are quite numerous; the havoc they commit is very great. This species is very powerful and spirited. When wounded, it exhibits a revengeful tenacity scarcely surpassed by the eagle, facing its enemy with undaunted courage, striking with its powerful talons and snapping its bill while in his presence. Its great goggle-eyes open and close rapidly, and the feathers of its body being puffed out swell its apparent bulk to nearly double the natural size. This bird is easily approached in bright sunshine, but if the weather be cloudy it rises to its feet at the slightest noise, erects the tufts of its head, and flies off to such a distance that it is difficult to find it again. They pair early in February. The curious evolutions of the male in the air, or his motions when he has alighted near his mate, are impossible to describe. His bowings and the snappings of his bill are extremely ludicrous.

The nest, which is very bulky, is usually fixed on a large, horizontal branch, not far from the trunk of the tree. It is composed of crooked sticks, lined with coarse grass, and some feathers. The whole measures nearly three feet in diameter. The eggs, which are generally from three to six, are almost globular in form, and of a dull, white color. The male assists the female in sitting on the eggs. Only one brood is raised in a season. The young remain in the nest until fully fledged, and afterward follow the parents for a time, uttering a plaintive cry for food. They acquire full plumage the first spring, previous to which they are lighter, with more dull buff in their tints.

The food of the Great Horned Owl consists chiefly of the larger species of gallinaceous birds, half-grown wild turkeys, and domestic poultry of all kinds, together with several species of ducks, hares, young opossums and squirrels, and whenever chance throws a dead fish in its way the Great Owl feeds with avidity on it.

The Money of the Indians.

The use of a medium of currency or money was quite common among the natives of the eastern parts of the country when it was first visited by the Europeans. The use of money was confined to tribes superior in intelligence and in the arts of savage life. I have been much among the Apaches and other tribes of the far West, including the Digger Indians, who are said to excel the grizzly bear in intelligence only in being able to make a fire. All of the tribes belonging to the southern part of California and along on the Mexican frontier are of a low grade of intelligence, and I never saw anything like money in use among them. Their trade was all done by barter, and several articles were made to serve as standards of value. One deer skin was valued at three charges of powder. One sheep was valued at a basket of corn, and so on. I had occasion to trade with the Maricopa Indians for a quantity of corn. The material we had to exchange for the corn was common white cloth, unbleached cotton sheeting. The agreement was that we were to give a *vara* of cloth for a *fanega* of corn; these being the Mexican measures, and in a rough way would be a yard of cloth for a bushel of corn. This seemed all plain enough, but the length of the *vara* had first to be fixed. The largest waisted man in the tribe was brought forward, and the *vara* was to be as much as he could measure from his hand to his nose. You have probably seen rough measurements made in this way, in the absence of a yard-stick. The *vara* being thus established—how that "buck Indian" did stretch!—came the *fanega*. Various rickety and uncertain baskets were brought and proposed. As they had had their way and taken up much time with the standard of cloth measure, I sent to the train for a new wagon bucket, which was set before the chiefs and his men as our standard of measure, twice full of which would be a *fanega*. "*Oh, no, very grande*," was objected, —"too much." They were told that they had made the *vara* (which, by the way, was cut off and kept as the standard) and we did not object. Now here is our measure for corn, and you at once find fault that it is too much. That is our *fanega*, take it or not, or we do not trade. Give you ten minutes to decide, pointing it out on the watch. The cloth laid where the women had a chance to feel of it, and as it was vastly better than "Indian traders" brought them, the women soon decided to trade, as why should they not, for they had done all the labor of raising the corn. The most valuable among the small articles among the Apaches were playing cards. Ordinary cards, such as the Mexican sell them, being of cardboard do not long endure the hard usage and exposure of savage life. The Indians are inveterate card-players and gamblers, and make very durable cards of their own. The material is deer skin, not dressed, soft and pliable, like the usual *chamois* (shammy) but dressed like leather, with a hard surface. Upon these are marked the characters or "spots," with an almost black juice that exudes from the stones of the Mezquit tree. These packs are made in imitation of those used by the Mexican, which differ, especially in the face cards, from those in use in this country. I have been told of wonderful trades, in which a single pack of these cards was valued at several horses, but have forgotten the details. It costs work to make a pack of cards, but the horses are procured by stealing. The money in use by the Indians of the Atlantic tribes was called *Wampum*, and was made from shells. The shells were abundant enough, but much labor was required to

convert them into wampum. The shells were broken to procure pieces of proper size, which were smoothed by rubbing them upon a stone and drilled. The white money, usually called wampum, was made from the shells of the Periwinkle. A blue money called *Suckanhock* was made from the round, or hard clam, as it is called in New York and southward, but in New England is still known by the Indian name of *quahog*. The wampum served not only as money but for ornament,—for this latter purpose it was strung to form belts, necklaces, etc., and was known as *Wompompeage*. The early settlers adopted wampum, and for a long time it was in common use with the Dutch of New York; four beads, and later six beads passed for a stiver. In New England, in 1640, the valuation was fixed at six beads for a penny. Strings of wampum were always used in the ratification of a treaty, and by the arrangement of the beads, according to their colors, served as a record of the event.

THE DOCTOR.

A Close Call for the Cub.

The cub was a half-grown black bear which had been captured in its clumsy babyhood by John Mead and carried to his farm in one of the western counties in Michigan. While on a hunt in the northern part of the State, he had suddenly encountered the old mother bear, with two cubs. Now a black bear, under ordinary circumstances, has a wholesome dread of man, and will turn and run at sight of one. But bears of all species have an affection for their young so strong as to overcome this natural fear, and will face any danger in their defense. So when Mr. Mead, stepping stealthily through the summer forest, came suddenly upon the old she-bear and her furry babies, she rose upon her haunches, and stood growling defiantly at him, with her great red mouth wide open. Touched by her motherly devotion, Mr. Mead would willingly have left the old bear unmolested if he could have done so with safety to himself. But he was already at such close quarters with the angry animal that he well knew it was his life or hers. A well-aimed shot from his rifle brought her down, and Mr. Mead was soon on his way to the nearest settlement with the skin and the two cubs. One of them he sent by express to a friend in an Eastern city; the other one he carried home with him, where it was kindly cared for and soon became a great pet, especially for the three boys. They named him Muggins, and made him a comfortable kennel, which was kept well supplied with fresh, clean straw for his bed. Muggins was given the freedom of a long, light chain, attached by one end to his collar, and at the other was an iron pin driven into the ground. The boys taught him all manner of amusing tricks, and he seemed to enjoy the fun quite as much as his two-legged playmates. Down in the lower corner of the orchard was a tree of great yellow sweet apples. When the warm, calm September days came, the boys would unfasten Muggins' collar and take him to the tree. This he climbed nimbly, and after shaking down some of the ripe apples, would come down at the call of the boys, and share with them the apples, of which he was very fond. One day the boys had been cutting corn with their father in the field, and on coming to the house at dinner-time, they ran, as usual, to the house of their shaggy pet in the back yard; but Muggins was gone, chain and all. He had tugged away at the iron pin until it became loose and pulled out of the ground. The chain had left a distinct trail in the grass which led toward the orchard. The boys hurried toward the large sweet apple tree, rightly suspecting that it was the object of the cub's raid. When they arrived within sight of it, there hung poor Muggins by the neck to a lower limb. They quickly ran to his rescue, and while one lifted him so as to relieve the pressure on his throat, the other unfastened the chain from his collar, and then they laid him down on the grass. At first they thought he would never breathe again; but after a few moments he drew his breath, and was soon able to amble back to his quarters. It seemed that after pulling himself free, Muggins had gone and climbed the old tree, shaken off some of the apples, and then swung himself down from the lower limb by his forepaws, unmindful of the chain which dangled from his collar. But the chain had become entangled in the limbs, and when he let go his hold upon the limb, it held him suspended by the neck, too low to reach the limb with his paws. Only for the opportune arrival of the boys, all would soon have been over with Muggins.

THERE HUNG POOR MUGGINS BY THE NECK.

Making Our Pets Sick.

M. BOYER.

So often comes the question, "What is the matter with my bird?" And the poor little creature dies without apparently a disease. Well, it is not sickness—it is no disease. The bird has been fondled, no doubt, by yourself and the little ones. It is so nice and tame, and will eat out of your hand so willingly, that a little caressing will do it no harm. No, a *little* would not harm, but you do not stop there. You are allowing this petting to be carried on to too great an extent. In other words, you are weakening the bird, and it droops, and droops, till it dies. Have your pets tame, but do not take them in your hands. The best singers are as a rule the wildest birds. We have known excellent singers to be spoiled by being made the pets of children.

Pets are also made sick by kindness. We were one day called in by a lady to see her bird that was "terribly sick." There the bird sat, puffed up, almost as round as a ball.

"I thought it had lice," she said, "but it has not."

We caught the bird and carefully examined it, but not a mite could be seen. Then we looked at the seed-box. It told the whole story. The bird had been feasted on a seed diet, two-thirds of which was composed of hemp. It had been putting on an endless amount of fat, and was the next thing to death. We advised the removal of the seed, and a plain canary-seed diet instead.

"But how can that hurt—it is so cruel to take the seed away poor Dicky loves so well."

But that is no reason why the luxury should be indulged in. Hemp is fattening. It is needless to say that a month's change of diet restored the bird to its former health and song.

How Girls can Improve their Complexions.

COUSIN CARRIE.

Sallowness, pimples and freckles are not becoming, we all know, but then, a little care and a few simple remedies will often work a wondrous change. Now please don't think that I am going to recommend any of the many lotions, balms, creams and powders, many of which too often do more harm than good—while rouge is an abomination not to be thought of. Mother Nature has given us the best cosmetics, if only we were not too indolent to use them. They are pure water, fresh air and sunshine, which if used in conjunction with exercise and nourishing food are pretty certain to produce health,—and health very often means beauty. There are three things, however, that I would advise every girl to keep on her toilette table, and they are, ammonia, French charcoal, and borax. Their uses are numerous.

The ladies of the olden time had great faith in the virtues of May dew and June rain-water. These were very good as far as they went, but the trouble was, they only washed their faces, and allowed the pores of the body to be clogged, without a thought. We now know that the daily bath is one of the greatest beautifiers of the skin known, and one that English girls appreciate far more than Americans. Cold water, however, can only be used safely by the very robust. A bath should never chill one, and the feelings are the best thermometer. Eighty-five degrees is a fair temperature, but it should always be followed by a cold dash, or sponge bath. One of the most invigorating washes, almost equal to a plunge in the surf, is a few tablespoonfuls of liquid ammonia in a pail of water, followed by a vigorous rubbing with hair gloves, after which the flesh will feel smooth, cool and firm. Are you pale and inclined to chilliness? Then avoid a chill above all things. It depresses the spirits, deadens the skin, and paints blue circles round the eyes. No matter how others may feel, put on a wrap at the first creep, and you will find great comfort in a sheet of tissue paper quilted in marcelline silk, and worn between the shoulders. Digestion has also a great deal to do with the complexion. With some, coffee always brings out an eruption; with others, fish or nuts. Full-blooded girls should avoid fat meat and milk except in the depth of winter. An excellent and simple remedy to clear the skin, is to take a teaspoonful of charcoal, well mixed in water, for three successive nights, following it up by a dose of salts. The last, however, must not be neglected. Country girls all know that buttermilk is good for sunburn; but they may not have all tried cucumbers sliced into half a pint of skim-milk and allowed to stand for an hour. The face and hands may be bathed with this, and when dry washed off with clear water. A popular writer says, "Want of sunshine and nourishing food gives the coarse, uninteresting look to most American women." This is a trifle sweeping, but there are many pale girls who would be better for more sun and beefsteak. Sunshine tones up the nerves, stirs the blood like a magnetic hand, and deepens the color of the eyes, while exercise brings roses to the cheeks.

Above all, dear girls, cultivate your minds and hearts, for the most beautiful complexion cannot compensate for the lack of animation and expression which intelligence and kind thoughts alone can give.

More Authors' Names.

13. Part of a fish.
14. A man's name and a descendant.
15. A sea-shore in the comparative degree.
16. A kind of spout.
17. To put away.
18. A chain of hills containing a dark treasure.
19. Very useful and under the sea.
20. Not high and a measure.

Expect answers next month.

FROM NEAR AND FAR.

Homesteading in Kansas.

We had been wandering over the prairies of Northwestern Kansas in search of a place we might call home. In one wagon was the family, consisting of husband and self, with a few boys and girls. The other held our bedding and a few necessary cooking utensils. In the evening of our second day's journey we came to anchor at a little sod house built in the side of a draw. The draw, you must know, is a decided feature of this district and looks like the bed of a stream, only it is perfectly dry and well-clad with thick grass. The mistress of this house, Mrs. Richmond, gave us leave to stay there until we should decide on a place of our own, and here I learned how contented one could be, even in a sod house. So when my husband told me that he had secured a homestead with a house already on it, I was quite eager to get there. It was two hours before sundown when we left the Richmonds' house and started for our own. By this time we had come to the conclusion that a sod house was good enough for a beginning, and I pictured to myself a snugly-built sod house, well plastered inside, with proper doors and windows, like the Richmonds', only bigger, to suit the size of our family, and with, maybe, the addition of a board floor. Just about twilight our wagon went over the edge of a wide, smooth draw and pulled up on the other side, where our house was. We alighted from the wagon and went a few steps along a passage, on either side of which the dirt was piled, shoulder high. Then we came to a door, with four panes of glass in it. Opening this door we found ourselves in a square hole, dug out in the side of the prairie. The roof was higher than the prairie, however, by a foot and a half, and as far as we could see was a very good roof. That was all. No windows but the lights in the door, and no plastered walls. When I first stood inside I said to myself, "It smells like a grave." The twilight was deepening, and of course that was depressing. One redeeming quality it had was its thorough dryness. Our cooking stove we squeezed into one corner, and when the lamp was brought in and lighted the black walls looked hopelessly black. I suppose we were a forlorn looking set of people when we had brought in a few boxes and had sat down to face the situation.

We did not, by any means, regret coming to Kansas, only I felt a little twinge of conscience on account of the children, who had not been consulted in the matter of coming. But I have often noticed that what seems miserable to grown-up folks is accepted by the youngsters as fun, especially if there is a touch of novelty about it. We prepared and disposed of supper, and how to arrange for a night's sleep was next in order. In the first place, we put everything, except the stove, outside the door, then spread a carpet and laid down the bedticks. These took up the entire width of the cave, and the foot of the beds reached nearly to the door. Every night, until we had another room, we went through this performance, and every morning the first thing was to pull out the bedding and lay it on the prairie and then bring in tables and chairs and make breakfast. On this first night in the cave we slept well, and next morning we had only to go outside to find all our misgivings, if we had had any, dispelled under the influence of a morning as near perfection as one ever hopes to see.

MRS. B. B. RUSSELL, Sheridan Co., Kansas.

Middle Tennessee.

The rich lands which produce from forty to sixty bushels of shelled corn, from twenty to thirty-five bushels of wheat, from one to three tons of hay per acre, without manure, scant of timber, with no outdoor range for stock, are valued from ten dollars to one hundred dollars per acre, and can seldom be bought at that price. Furthermore, they are not well adapted to fruit and vegetables. For persons of small means I would recommend our plateaus which can be bought unimproved for from two dollars to five dollars per acre, and improved from five dollars to ten dollars, according to improvements. These lands are rolling like the prairies, but are covered with hickory, poplar, chestnut, and chiefly with the different oaks, ranging from saplings to trees three feet through. Where there are no springs, the best of water is obtained from wells from thirty to fifty feet deep. This land produces with indifferent cultivation (many fields having been worked for fifty years without the benefit of a shovelful of manure), from twenty-five to thirty-five bushels of shelled corn, eight to twelve bushels of wheat and from one to two tons of hay, such as herdsgrass, millet, clover, etc., per acre. By proper cultivation and manuring the crops are doubled, as proven by some good Northern farmers. These lands are well adapted to all kinds of fruit and vegetables. My potatoes last year yielded at the rate of two hundred and fifty bushels per acre, many weighing two pounds. I had my first ones for use the third of June. The two coldest days we had last winter were four degrees below zero; the deepest snow from four to five inches, which lasted three days. The four hottest days in the summer were 94° in the afternoon, average temperature 75°. The nights are cool enough to sleep. I came here from the North, and as such say that for an honest, industrious man, no matter what his politics are, his family and property are as safe here as in any part of the Union. Loafers and dead beats had better stay away. P. C. BLUHM, De Kalb Co., Tenn.

The Heart of the Old Dominion.

Goochland County is situated ten miles west of Richmond, on the north side of James river, which stream forms its southern boundary for more than forty miles. Being situated as it is, in the noted Piedmont region of Virginia, it is far enough from the mountains, so that we are not liable to sudden changes, nor to storms and snows; on the other hand it is so far above tidewater as not to be subject to malarial influences. It is one of the most healthful and salubrious sections of the country. The summers are long, and the heat is not so great as in northern or central New York, being tempered by the mountains on one side and the ocean on the other. Our winters are just long enough to kill vegetation, and promote fertility. The surface is sufficiently rolling to give perfect drainage, and the soil is a gray or chocolate loam, resting on a tenacious clay subsoil. It is susceptible of the highest improvement. Fine crops of wheat, corn, tobacco, and all the grasses are raised. Blue grass is indigenous to the soil; all kinds of stock can be raised here. Cows need little fodder, and young stock can run out and get their living the year around, do well and make a fine growth. The cost of producing a given quantity of butter and cheese is much less in Virginia, owing to its milder climate and longer seasons, than in many other parts of the Union. There is no doubt that this will ultimately be one of the noted dairy regions of the country. Cheese- and butter-factories have already been started. The country is abundantly watered by never-failing spring brooks of pure, soft water.

Our forests produce the different kinds of oak, with pine, hickory, and cedar. While a great part of the timber has been cut off, enough remains on most farms for home use.

The country is also well adapted for raising all kinds of fruits adapted to this latitude, such as apples, pears, peaches, quinces, plums, cherries, grapes, strawberries, etc. Both sweet and Irish potatoes grow well here. Irish potatoes are planted from the first of March to the first of August. Corn can be planted from the middle of March to the first of July. Oats are sown in February. We have a fine market in Richmond; the Richmond and Allegheny railroad traverses the entire length of the country, giving cheap and convenient transportation. Land is worth from five to twenty dollars per acre. A large number of farms have been sold in this county during the past year to Northern men. We have here one of the largest Northern communities in the State.

E. BARROWS, Goochland Co., Va.

Northwestern California.

This place is a "settlement" about sixty-five or seventy miles south of Eureka, the county seat. A post-office and a school-house, and, a little farther, a mill, make up the place, as far as situation on the road is concerned. The dwellings are scattered; some on the road—which is the Overland stage and railroad, so long renowned in song and story—joining Eureka (by rail to Hylesville twenty miles) to San Francisco. Cloverdale, the beautiful and renowned, as being near the geysers, is at present the rail terminus from San Francisco in this direction.

The people here own large ranches, over which sheep, cattle and wild game range or feed. Deer come down nearly every day to the field a few rods from the house, which is a short distance from the stage road, but hidden from it by beautiful evergreen trees.

Wheat is now growing finely; garden vegetables of the earlier varieties have appeared on the table for several weeks; strawberries were ripe in the garden April 25th; new potatoes have been fit for the table for nearly a week. There has been no frost this year, and you ought to see how everything does grow. Some seasons there is colder weather, but all years the finest apples, peaches, etc., grow, untroubled here as yet by the dread fruit pests. Black walnut trees are growing in the yard, planted by a woman, and almond trees in the garden, the seed planted by her little boy; now both kinds are large enough to bear.

The native trees here are fir (several kinds), madrona, oaks (including the tan-bark), pepperwood—more brittle than laurel—yew, and several others. The mountains are rugged, often precipitous, and much cut by canons, but everywhere thickly clothed with these beautiful trees, the fir the most beautiful. A light snowstorm the 14th of February draped the kingly fir until the branches reached earthward, a sight rarely beautiful, the dark green showing through the snow.

Large salmon abound in the creek; also trout, and some smaller fish of other kinds. Springs are plentiful; the water clear, cool and sweet. The AMERICAN AGRICULTURIST is a welcome visitor here and all read it.

JENNIE R. BUSH, Humboldt Co., Cal.

How Newfoundland Farmers Procure Manure.

It may interest many to know how our farmers procure manure for their farms. Between the 13th and 20th of June every year, after the seed is all in and cared for, comes the famous "manure-harvest,"—the caplin-school. Caplin are a small fish something like the American whitefish. They are smaller than herring but much larger than sardines. On the pebbly beaches that fringe the magnificent bays of Newfoundland, they find natural and congenial spawning grounds. About the middle of June, in obdience to the great and universal law of Nature,—the increase and multiplication of species,—they come in immense shoals,—in millions upon millions,—to deposit their spawn upon the pebbly sea-shore. Their mode of depositing the spawn is such as to leave them at the mercy of the innumerable hordes of fishes and fishers that prey upon them. The female is small and smooth, and the male is large and ridged. When spawning they swim in threes, one female between two males; the female fits between the ridges in the males, and they swim parallel, almost as one fish. The males by their pressure aid the female to deposit her spawn, and at the same time they drop their "*milt*," which fructifies the spawn. It is during this time, while the fish are apparently half-dazed, that the fisherman and farmer reap their harvest. They catch them with seines and cast-nets. With a seine, four or five men in a skiff can easily get from fifty to two hundred barrels of them in a day. The method of seining them is, when the caplin are close to the beach, one end of the seine is fastened ashore with a grapnel and the other end is kept aboard the skiff. The crew row out around the great body of caplin and fence in thousands of barrels against the beach. They then dip them out with dip-nets and get many skiff-loads—from thirty to fifty barrels in a load,—in one haul. They then land them on wharves or on the beach and haul them away to their farms, where they mix them in the proportion of one load of caplin to five loads of peat, bog or clay. This makes a very strong manure, and as it supplies nearly all the elements of plant food, it forces heavy crops of all kinds. Fishermen also catch them and use them as bait for codfish. They are a delicious morsel when eaten fresh, and there is a fortune for the man who solves the problem of getting them into the American markets as fresh and as delicious as we get them here. When salted or smoked they make a very good article of food for winter, and many a poor family preserves enough for sale, and to feed themselves, their pigs and hogs for a whole year, till the next caplin-school arrives. Of course, as a manure, they are a godsend to the farmers, many of whom have scarcely any other means of procuring fertilizer in sufficient quantities for their lands. But when looking at the thousands upon thousands of barrels of fresh, delicious fish, so used, it seems almost sinful to destroy such quantities of wholesome and tooth-

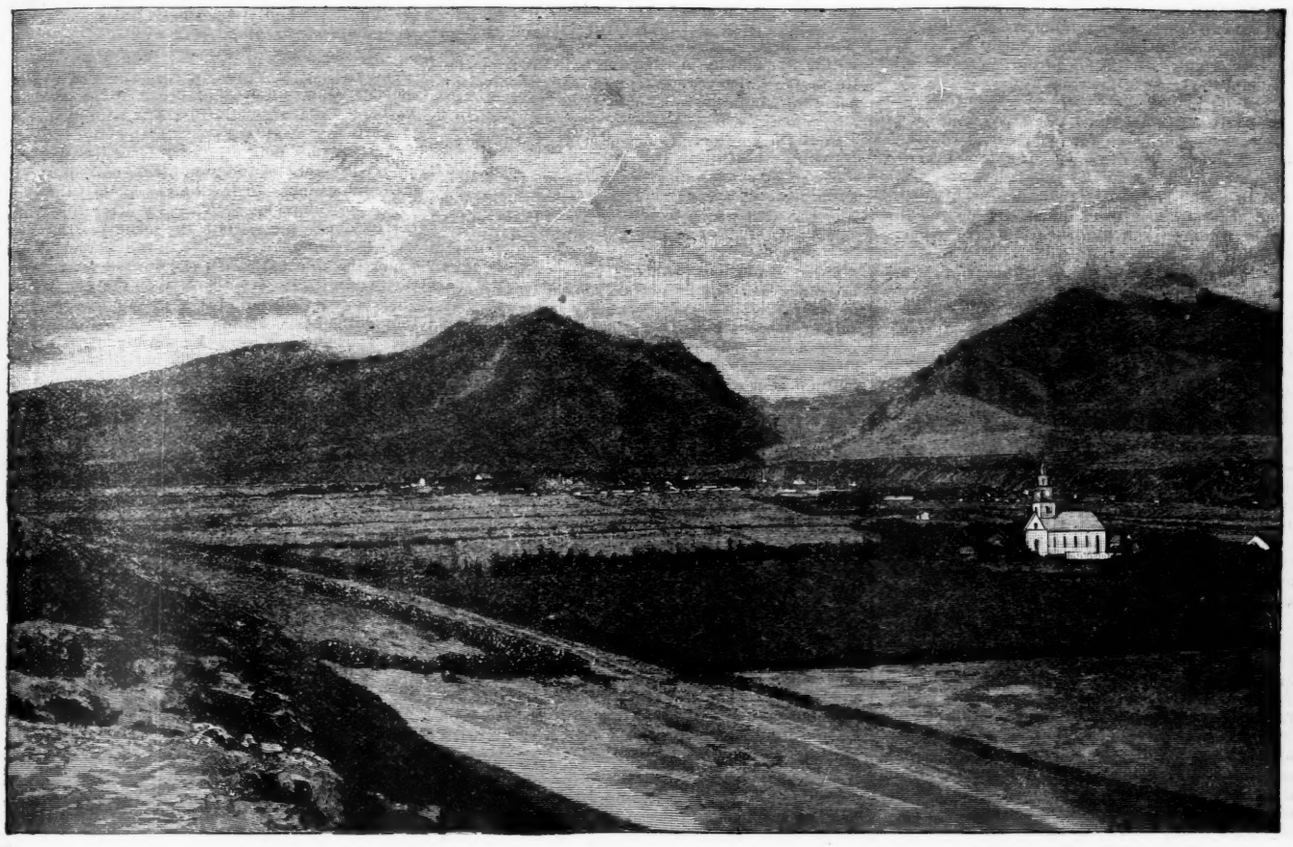
some human food, when so many millions of the race would eat them with a relish if they had the chance. W. J. C., Villa Nova, Newfoundland.

Sandwich Island Sugar Plantations.

The sugar industry is the most important one in the Sandwich Islands, the more so as sugar from these islands has been admitted free of duty into the United States under the treaty of reciprocity. The region in which is located the largest sugar plantation on the Islands is illustrated in the accompanying engraving, from Captain C. E. Dutton's report. This great plantation is called Spreckles-ville, after the owner, Claus Spreckles, the great California sugar king. It is located on the Island of Maui, which lies twenty-eight miles northwest of the principal island, Hawaii. Maui is about fifty miles long and thirty-two miles wide, having an area of 900 square miles.

The island consists of two elevated mountain masses separated by a narrow isthmus, which at its highest point is only about 160 feet above the sea. While the island is of volcanic origin, it is evidently many centuries since there were active eruptions. The mountains are full of extraordinary gorges. These recede from the margin of the sea or from the plains of the isthmus far back into the interior, and are inclosed by walls rising thousands of feet and wholly inaccessible to the human foot. The scenery in these gorges is probably as impressive and picturesque as in the wildest glens of Norway or Switzerland, and will not fall very far below the Yosemite valley.

Specklesville plantation is six miles from Wailuku. This is a pretty village situated at the opening of the famous Wailuku valley, an idea of which is given by the picture. The reclamation of these lands for sugar producing purposes from the condition of a desert to one of fertility was a triumph of energy and enterprise. The soil of this isthmus is fine and deep, but the climate is arid. In its original condition it was hardly to be expected that this soil could ever prove very fertile, and for two reasons. In the first place, it has the appearance of a red ocher, and contains from thirty to forty per cent of red oxide of iron. In the second place, the climate is very dry throughout the greater part of the year, and there are very few crops which demand nearly so much moisture as the sugar cane. Arid lands, however, usually become extremely fertile when irrigated, but there was no running water in the neighborhood, excepting in a few small streams at distances varying from three to ten miles, which were already utilized for the same purposes. The nearest available supply was found in a stream flowing down the eastern flank of the Haleakala mountain, about twenty-five miles distant. To bring the water to the plantation it was necessary for the aqueduct to cross or circumvent many canon-like gorges and rugged spurs similar to those in the Hamakua district of Hawaii. The engineering difficulties were unique and of so grave a character that they perplexed very sorely the engineers who constructed the canals which supply the hydraulic mines of the Sierra Nevada. But the work, though enormously expensive, was successful, and a supply of water was obtained capable of irrigating about 2,700 acres. The crop of sugar obtained from this land averages about 9,000 tons, or over three tons per acre. Expensive as the irrigating works were, therefore, the profits of the enterprise are enormous.



THE LARGEST SUGAR PLANTATION IN THE SANDWICH ISLANDS.

The Climate of the Mexican Border.

Our climate is different from that of the East, and yet is not like that of California. We are one mile from the border of Sonora, at an altitude of 1,500 feet above the sea level. The grapes of California do well here. Muscat of Alexandria, Black Prince and Golden Chasselas grow finely. We have also a number of Concord, Brighton, Worden and Montgomery Red. My tea roses, of which I have a large bed, began blooming the beginning of April, and are now (May 8th) covered entirely with a mass of flowers. They need no Winter covering here, but we must irrigate to have trees, plants and flowers.

MRS. A. F. CAMERON, Pima Co., Arizona.

Southeast Texas.

I broke sod land last October, and put on ashes and hot manure. In December more manure, old and well-rotted, was applied, and the land ploughed again. December 24th, planted part in Irish potatoes, which were peeping through the ground on January 16th. Commenced eating new potatoes March 29th. After the last hoeing I planted corn between the potato rows, and on June 24th, six months from the time of planting potatoes, we began to pick roasting ears. The balance of the ground was planted with cabbages on February 13th, and the crop all sold readily, and on June 15th the cabbage ground was planted with corn. Roasting ears were found about August 15th, and about September 1st I shall plant the whole ground with turnips. This is what is called very poor land for Texas, but I am satisfied.

JAMES PATTERSON, Jefferson Co., Texas.

The Season in Canada.

The agricultural interests here are carried on by a mixed system of farming, stock, grain and fruit each receiving a fair degree of attention. In many respects the past season has been a remarkable one. Early in spring, when seeding operations were being carried on, the weather was very cool and dry; nevertheless crops were doing well as the season advanced. There was every indication of a large fruit crop. On the night of May 23 a severe frost cut the fruit severely; the grapevines were cooked; strawberries were damaged very much; currants and gooseberries slightly; apples little if any. Following the frost some two or three days, we had one of the heaviest rainfalls for many years, and for three weeks it continued cool, cloudy and showery, and as a result, crops of all kinds are looking remarkably well, except corn and potatoes; for these there has been too much rain. The hay and winter wheat crops were both abundant, and were secured in good order.

REV. JOHN MORRISON, Lambton Co., Ontario.

Wild Fruits of Northern Montana.

The Teton Valley is the most wonderful place in the country for wild fruits—currants, gooseberries, cherries and service berries. The bushes and shrubs are loaded down with the weight of the fruit, which is this season of unusual size and delicacy of flavor. Ranchmen, with their wives and children, are nearly all busy picking and making jam, "sass" and "jell" of the currants and gooseberries, and spreading the other fruits on sheets to dry for winter use. When needed, they are soaked a few hours before they are cooked.

The usual "June rains" of Northern Montana came in July this year, and the country is beautiful. Stock is fat and everything growing.

F. W. ANDERSON, Choteau Co., Montana.

OUR BASKET.

Irritation of Nerve Centers in a Mare.—S. S. McCartney, Randolph Co., Mo., wishes to know what was the matter with his twelve-year-old mare. Twelve days after a natural foaling, she was driven six miles and hitched in a shade. She was probably warm and stood in a draught, or was suffering from some irritation of the nerve centers. She stood two hours, showed signs of sickness, and suddenly fell and had spasms for ten hours. The twenty-sixth day she was driven six miles, watered and led two miles, when tetanus attacked her, and "four days of faithful tending brought her out apparently right." Irritation of nerve centers was no doubt the cause of the trouble.

Holstein-Friesian Herd-Book.—Volume IV of this work has been issued in two parts, one devoted to bulls and the other to cows. The former carries the record from No. 9089 to 12278; the latter from 11143 to 15287. The issue is characterized by the same accuracy and mechanical elegance as the former volumes, and like them reflects credit on the skill and taste of Mr. Thomas B. Wales, the secretary and editor of the Holstein-Friesian Association of America.

When to Cut Oats for Hay.—E. F. Musson, Alameda Co., Cal.: Where oats or other small grains are raised for hay, the best time to cut is just as they are in full bloom.

Wood Ashes—Manure.—Frank M. Baum, Onondaga Co., N. Y.: (1) There is no soil which is more greatly benefited by the application of wood ashes than a light, sandy loam. (2) Where stable manure can conveniently be hauled out and applied directly from the stable, it is better to do so than to wait for it to ferment. Nothing is gained by the latter course, and something is inevitably lost by leaching and the escape of ammonia, which is saved where the manure is applied direct.

Lime and Ashes in the Poultry House.—A. Bruener, M. D., Alameda Co., Cal.: Neither quicklime nor ashes should on any account be brought in contact with the droppings of the poultry house. They liberate the ammonia, contaminating the air of the house and rendering it extremely unwholesome, to say nothing of the deterioration of the manure. Sand and sandy loam have very little absorbent power, but dry clay, dried swamp muck, or, best of all, ground land plaster (gypsum) sprinkled freely under the roosts will absorb the ammonia, check fermentation, keep the atmosphere pure, and add greatly to the value of the manure.

Chrysanthemums.—If in the garden, pot a portion for winter blooming; put in rich open soil as soon as the buds are formed. If plant lice or black flies appear use tobacco in the form of tea or dust. Thin out weak stems, and make the change to a warm room gradually.

Various Questions.—F. H. Scheifer, Pulaski Co., Arkansas, asks: 1. How can the bulletins of the United States and State Departments of Agriculture be obtained? 2. Which is the best butter cow, and how many pounds a week will she yield on an average? 3. How much land is required to keep her? 4. What protection is there against cutworms? 5. Are fowls beneficial in the orchard? *Answers:* (1) Write to the Secretary of Agriculture, Washington, D. C., for the first, and Arkansas Industrial University, Fayetteville, Ark., for the second. (2) Jerseys and Guernseys give milk from which more butter can be made per 100 pounds of milk than that of other breeds. But some families of Holstein-Friesians have produced extraordinarily large yields of butter per cow. (3) If kept on pasture and hay alone, three acres of good land at least are required to keep a cow a year. But with soiling and silage, supplemented with bran and other feed, one acre is amply sufficient. (4) Refuse salt is applied in moderate quantities with some success, but anything that can be used is only a palliative. (5) Yes.

Turnips.—The yellow stone and yellow Aberdeen may make a crop if sown the first of the month. The purple top, strap leaf and other flat sorts will, in favorable seasons, make crops if sown as late as the tenth of the month.

Protection for Young Plants.—J. Pusey, Delaware Co., Pa.: A very cheap and effective protector for young plants may be made of the collar for pipe tiles, which can be bought at nearly all factories of drain tiles. The collars are in sections, about the same in length as ordinary pipe tile, with grooves partly separating the individual collars. When broken apart the collars are each about four inches long, and two or three inches in diameter. One of these is set around each plant and pressed slightly into the ground, so as to exclude cold winds, cutworms, bugs and other enemies. The collars are practically indestructible, and with reasonable care a supply will last for years. Where they cannot be obtained a very good substitute is made by melting the bottoms from the tin cans in which vegetables and fruit are sold, and using the can in the same manner as above.

Roof for Poultry House.—George N. Holcomb, Hartford Co., Conn.: Any kind of good tarred roofing paper is suitable for poultry houses. Such a roof not only takes the place of shingles, but the coal tar with which it is filled gives it the additional advantage of repelling vermin.

Farm Machines.—Mowers, reapers and other machines will not be needed for use again until next spring. All the machinery that needs it should be repaired. Scour all the rusted spots with a corn-cob and sand. Rub all iron and steel parts with a mixture of one part of lard and half a part of rosin; stir until cold. This will also answer for table cutlery, surgical instruments, etc.

Feed or Breed.—A remarkable test was recently concluded by Messrs. Smiths, Powell & Lamb, of Syracuse, which proved that large milk yields depend upon inherent qualities to a far greater extent than upon the quality of feed. Taking twelve cows of their Lakeside herd of Holstein-Friesians, they stopped the grain rations, pasturing them in summer, and feeding only corn ensilage and hay in winter. The test showed an average yield of 14,062 pounds of milk per cow; only half of them had completed the full year, the other half falling so much short of it that the average time of the twelve was only eleven months and twelve days. The test clearly shows the importance of starting with good cows, for no system of feeding could have produced such a result with common animals.

Paulownia.—D. L. Morrison, Henderson Co., N. C.: The specimens sent are *Paulownia imperialis*, a handsome tree introduced from Japan. It is a very rapid-growing tree, extensively used for ornamental planting. It is readily propagated from root cuttings, or from seed. Although the tree is hardy at the North, its flower-buds are frequently killed in winter.

Nitrate of Soda on Strawberries.—James Cannon, Salisbury, Md.: We have used nitrate of soda on strawberries for several years and have never sustained any damage, but on the contrary, great benefit. A strong solution of nitrate of soda in water will burn the green leaves of strawberries. And if nitrate of soda is sown broadcast on strawberries while the leaves are wet, it will be likely to injure them. But if sown broadcast over the bed while the leaves are dry, no harm will be done. Our own plan is to sow the nitrate on strawberries and other crops early in the spring before the leaves start. If sown in summer while the leaves are tender and succulent, the safer plan would be to sow it on the ground between the rows, and be careful not to let it get on the leaves.

Pistillate and Hermaphrodite Strawberries.—C. A. Duke, McKean Co., Pa.: Crescent and Manchester are pistillate varieties, that is, they require a hermaphrodite or perfect variety near them about every fifth or sixth row. Bidwell, Sharpless and Wilson have perfect flowers. Charles Downing and Cumberland are excellent old varieties. When it is intended to raise strawberry plants for sale it is of first importance to keep each variety strictly pure; this can only be done by planting the different kinds sufficiently apart that the runners cannot grow among each other.

Two Crops of Potatoes in One Year.—L. Bowman, Lorain Co., O., writes us that about New Year's he planted a small potato in his hot-house. In eleven days sprouts appeared above ground. On March 2d he removed two new potatoes from the roots, as large as walnuts. On June 4th one of them was planted, and sprouted also within eleven days. The plant continued to grow vigorously and was in full bloom on July 18th. On July 25th we received from Mr. Bowman a handsome potato, over three inches in length, of this second crop, with the request to let him know whether anyone can beat this. Perhaps not, but at the time when the Early Rose fever ran high, one of the editors of the AMERICAN AGRICULTURIST raised a fine crop of potatoes from tubers grown the same year in Georgia. The second planting was made about July 1st, and yielded nearly as much as the regular spring planting.

The Late A. N. Cole.—A career, which was in some degree a public one, closed by the death of Asabel N. Cole, at Wellsville, N. Y., July 15th. In his early manhood Mr. Cole took an active interest in anti-slavery politics, and was politically intimate with many of the prominent free-soil statesmen and leaders. In 1852 he established the *Free Press* in Wellsville, N. Y., and after the Whig party went to pieces with the utter overthrow of its ticket that year, he issued in the columns of his paper the first call for a convention to organize the Republican party. This gave him the soubriquet of "the father of the Republican party," though the party would doubtless have existed all the same without him. He simply drifted with public opinion, which he had but little influence in forming. His latest achievement was the so-called "New Agriculture," a system of sub-earth irrigation, upon which he secured a patent.

Melons Mixing.—A. B. Allen, Ocean Co., N. J., writes us: I notice that it is frequently stated that to prevent melons from mixing they should not be planted nearer to each other than one hundred yards. For a dozen years or more past I have planted watermelons and muskmelons in separate beds of fifty feet or so long, parallel to each other and not over sixteen feet apart, and I never could discover any mixture of these, or that each sort when ripened was not precisely like the same sorts planted the same season, five hundred feet or more from each other. I have also occasionally planted two or three different kinds of water- and muskmelons, with a separation of only a few feet apart in the length of the same row, and I discovered no mixture in the appearance or taste of the fruit when cut open for eating.

Abundant Crops in Illinois.—Wheat and oats have all been harvested. The wheat is in stock, and what has been threshed out is of very good quality; the yield is from poor, on corn land, to very good, on summer fallowed clover or good stubble land. Oats are variable, some being badly blighted. Potatoes were never better in this locality, in quantity as well as quality. The Early Puritan surpasses all other varieties with which I am acquainted. We have had an abundance of rain and hot weather, and corn upon well-tilled and drained land has made an unprecedented growth, and promises an immense yield. The clover crop has been very heavy, and if the grasshoppers do not get too numerous, there will be a large yield of seed. The berry crop has been a very large one, but not very profitable. All kinds of tree fruits are abundant and cheap. Taken altogether, crops are good and prices low, leaving the farmer but small profits.

E. P. KELLENBERGER, Madison Co., Ill.

Burnt-Out Land.—Charles A. Foss, Clallam Co., Washington: Land from which the top soil was completely burnt off by fierce forest fires, leaving only a gravelly subsoil, is necessarily unproductive, as the organic matter is consumed, and the potash has evidently leached away during the twenty years which have elapsed since the fire. Probably the cheapest way to make a new soil

would be to plow it shallow, with a heavy dressing of unleached wood ashes and bone dust; seed to grass, and next spring sow clover, with a light top-dressing of more ashes. The grass and clover ought to yield a fair crop next year, and, with a second top-dressing in spring, two more the following year. After the last crop is cut the sod may be turned over, and the next spring, after applying all the manure available, planted to corn or potatoes, or sown to oats. This crop is to be followed by a second seeding to grass and clover, to be plowed under as before. If there is no bone-dust attainable, take whole or cracked bones and pack in a barrel in thin layers, with wood ashes between, and keep the mixture wet for five or six weeks, when the bones will be so soft as to crumble at a touch. Break up fine, mix thoroughly with the ashes, and apply as suggested above.

Seeding to Grass.—There should be a period of several weeks between the time of sowing the grain and the grass seeds. Timothy especially is often so strong as to overcome young wheat plants.

Fertilizers for Strawberries. — A Connecticut clergyman has a new strawberry bed—about one-third of an acre—that he wishes to top-dress with artificial fertilizers. He cannot get wood ashes or stable manure. Sow on the bed this fall one hundred pounds of any good complete commercial fertilizer, and next spring, as soon as the frost is out of the ground, sow fifty pounds of nitrate of soda broadcast on the bed, and in two or three weeks, or as soon as the plants have fairly started, it will do no harm to sow twenty-five pounds more of nitrate of soda in the rows, being careful not to dust it on the tender leaves. This will, in all probability, give a great crop of strawberries. But be careful to keep out the weeds, or they will "gobble up" the nitrate.

Woodchucks. — George Craig, Saratoga Co., N. Y., says his farm is over-run with woodchucks, and wishes to know how to get rid of them. On our own farm we have got rid of them by keeping a couple of small terrier dogs. We have also a Collie shepherd dog that has killed quite a number. He is very quick and active. One morning we found him in the lot with a woodchuck that he had "surrounded." The woodchuck showed fight and he was afraid to attack him, but kept running around him so that he could not get away. He kept him till the man came to his assistance with a stick. The two together dispatched him. Try what you can do with a rifle or shotgun.

The Prize Crops.—The harvest of the Oat and Wheat crops and the approaching harvest of the Corn and Potato crops grown by the contestants in the AMERICAN AGRICULTURIST Prize Crop Competition makes the interest in the contest for our four prizes of $500 each more keen than ever. A large number of farmers who are competing for the prizes have been quite unfortunate owing to excessive rains. Especially is this true of the Potato contestants in the Eastern States, some of whose crops were badly washed, while others are stricken with blight, and are rotting. In a few cases the Bordeaux mixture has been used as a protection against the blight, with fair success. With one or two exceptions, however, all who have entered for contest will carry out their part and send in their reports. They appreciate the fact that the greater the number of reports from farmers in all sections, and under all sorts of conditions, the better will be the value of the lessons taught by averaging these results. If every contestant succeeded in raising a big crop because of a uniform good season, in addition to proper culture, the results of the contest would not be nearly so valuable to practical and scientific farmers as the average of crops of all sizes, grown in all sorts of weather. The number of contestants for the $500 in gold offered for the best acre of Wheat is so far disappointingly small; a goodly number compete for the Oat prize, but by far the greatest number of competitors are in the Corn and Potato classes. While the contest for the Corn prizes is very keen, it is still true that the deepest interest and the largest number of competitions are in the Potato contest. We not only expect some astonishing crops in all four classes, but expect that the carefully-prepared statement of how these crops were grown, and the practical and scientific lessons to be deducted from them, will make a profound sensation in the agricultural world, and have a vast influence on the future of American agriculture. Meanwhile the guesses that are coming in as to the probable yield of the prize acre of each crop afford an interesting insight into the judgment of our readers as to the capacity of our soil under the best culture. It must be remembered that in the issue for August a prize of the AMERICAN AGRICULTURIST for one year was offered to the one who guessed nearest to the actual crops secured.

Season for Grouse.—C. C. Van Deusen, Montgomery Co., N. Y.: The open season for ruffed and pinnated grouse in most of the State of New York is from August 1st to December 1st. In Rockland county it is from October 1st to January 1st, and in Queens and Suffolk counties from November 1st to January 1st. Ruffed grouse are the common "Partridges," as they are called in this State.

Short Grape Crop.—Reports from all parts of western New York show that the grape crop there falls short fully one-half from the crop of last year. The causes are the frosts late in May, and the excessive rains in June, superadded to the weakened and unripe condition of the wood at the end of last season. Along the Hudson the crop will be good.

Special Premiums at the Buffalo Fair.— In addition to the liberal list of regular premiums to be competed for at the International Fair, at Buffalo, September 3d to 13th, several special premiums are offered by English and American breeding associations. Among them is a silver cup, costing $250, which is offered by the Shropshire Society of England, for the best ram, with four ewes and two lambs, owned by the exhibitor. A similar silver champion cup is offered by the Oxford Down Breeders' Association of England, and the American Oxford Down Record Association offers a gold medal for the best ram and five of his get. In the swine classes a special prize of $25 is offered for Victorias, and a cup for Cheshires. The Holstein-Friesian Association offers to duplicate all premiums awarded to that breed, and all cheese and butter premiums won by them. The Hereford Cattle Association adds $250 to the premiums for Herefords. In the horse classes a special championship prize of $100 is offered for the best hunter. The Exposition bids fair to surpass the grand success it attained last year.

For Show and Breeding.— The show pen demands fat, and the breeding pen bone and muscle. Fortunately each year there are more breeders who keep their show hogs in good breeding condition.

Dwarf Apple Trees.—James O. McFarland, Delta Co., Mich., wishes information about dwarf apple trees. In brief, we may say that there are two kinds of dwarf apples. One is budded on the small Paradise apple stock—an apple which grows not much larger than a gooseberry. This slow-growing stock dwarfs the variety of apple budded on it, and forces it into early bearing. The other kind is obtained by budding on the Doucin stock. This dwarfs the variety budded on it only to about half the extent of the Paradise stock. For dwarf trees in the garden, those budded on the Paradise stock are the best. By judicious pinching and pruning, the trees can be kept down to not more than eight to ten feet high. But much depends on the variety budded, and dwarf stock. The Red Astrachan (summer) makes a very handsome dwarf tree. Out of ninety varieties of dwarf apple trees we have growing in our garden—now over thirty-five years old — we would select the following half-dozen: Red Astrachan, Early Harvest, summer; Fameuse, Alexander, autumn; Baldwin, King, Northern Spy, winter. With us the Fameuse or Snow apple is particularly fine and productive as a dwarf. It bears almost uniformly every year—often gives three bushels to the tree.

Harvesting Beans.—J. W. Smith, Hendricks Co., Ind., writes that he grew forty-five acres of beans and finds it quite a job to pull them by hand. He asks how we harvest the crop in the East? We have several machines for the purpose, but the great majority of bean-growers still pull the crop by hand—paying from $1.50 to $2.00 per acre. We hardly like to tell tales out of school, but it is not improbable that machines would be more generally used if there were fewer weeds among the beans.

Digging and Storing Potatoes.—The early crop is often injured by delay in digging. As soon as the vines are dead, the potatoes should be dug and stored. Everyone knows that a potato in the spring when it has started to grow and pushed its sprouts becomes of inferior quality for the table; its starch becomes changed into sugar and other principles which feed the growth of the leaves, and the tuber becomes soggy and of poor quality. When the early potato becomes ripened, the top or vines die down and a long period of dry weather completes the ripening, and the tubers should be dug and housed. If after a dry season a wet one follows, a long, warm rain starts the tubers into growth; not a growth of stems and leaves, but a kind of growth which often takes place when potatoes are stored in too warm a place, called "supertuberation." In this the material stored in the tuber for sustaining the growth of the following year is started and used for the formation of new small tubers. Most observing farmers must have found in their potato-bin toward spring new potatoes produced from the material of old tubers. Potatoes should be dried off before they are stored, and in doing this they should not be exposed to the sun. The old farm-house cellar, which is being abandoned as a storehouse for potatoes and other crops, has an advantage as a place for storing potatoes, as the odor which attends the destructive disease may be noticed at its appearance and the affected potatoes removed.

Setting Out an Asparagus Bed.—A lady in Connecticut asks: When is the best time to set out an asparagus bed? The plants can be set out either in the autumn, after they have ceased to grow, or in the spring. Set out some good, strong one-year-old plants this fall in rows six feet apart and eighteen inches apart in the rows. Spread out the roots and cover two or three inches deep, and before winter sets in spread horse manure all over the surface, three or four inches thick. In the spring, if any roots fail to grow set out others to fill up the vacancies.

Slaked Lime.—William C. Chapman, Oxford Co., Me., says he "is troubled to know just how to slake lime." Most of us are more troubled to know how to keep it from slaking. It will slake itself by absorbing water from the atmosphere. Burnt lime is limestone or carbonate of lime, from which carbonic acid and water have been driven off by heat, and there is a constant tendency for it to return to its natural state by absorbing carbonic acid and water from the air. Pure burnt lime is simply lime; slaked lime is "hydrate of lime." Seventy-five pounds of lime absorb twenty-five pounds of water, forming one hundred pounds of hydrate of lime. During the process of absorbing the water, great heat is generated, and the lime swells up and crumbles into a powder. Many seem to suppose that "air-slaked lime" is stronger, or more caustic, than lime which is slaked or "slacked" by water. This is a mistake. It is not as strong, for the simple reason that when lime absorbs water from the atmosphere, it at the same time absorbs carbonic acid, and to that extent is converted back again into the mild form of carbonate of lime. Practically, in using burnt lime for manure, all that is necessary is to put it in heaps in the field, and let the rain or snow slake it. When slaked, spread it evenly over the land. If you wish to put on one hundred bushels per acre, put a bushel in a heap, and the heaps ten yards apart each way.

Barbadoes Cherry.—P. H. Williams, Ciudad Bolivar, Venezuela: From the fragments you send of the fruit known by the local name of "cereka (*i. e.* cherry), in Venezuela, we conclude that it is a species of *Malpighi*, probably the *M. glabra*, known in some of the West Indian Islands as the "Barbadoes cherry," because originally found wild in Barbadoes. It is a favorite tree with the natives, who plant them near their dwellings often in the form of hedges. The flower of this species is rose colored or bright purple, and the fruit red, round and smooth, about the size and shape of the cherry, with one or more furrows on the outside. The pulp is of a reddish color, and of an agreeable flavor—at least when a person has become accustomed to the taste. There are several other species which bear edible fruit; mostly low shrubs, and only occasionally reaching a height of fifteen to twenty feet. As this fruit belongs to an order far removed from the apple, you could not utilize the latter as a stock upon which to graft this Barbadoes cherry, and furthermore, it is not at all probable that the common apple would thrive in Venezuela except on some of the mountains.

AMERICAN AGRICULTURIST
FOUNDED IN 1842

SEPTEMBER, 1889.

The Exposition of 1892.

The idea of celebrating the four-hundredth anniversary of the discovery of America by a grand World's Fair, in the city of New York, is making substantial headway. Committees on the various preliminary details have already been appointed from among the representative industries of the city. A definite plan of organization and management will soon be perfected. The cities of Chicago and Washington are also making great efforts to secure the Fair. The Washington plan is to have a "Three Americas Exposition," pure and simple, while New York wants not only the three Americas, but the whole world, to be represented.

There can be no question as to the desirability of such an exposition as is contemplated, and New York is in all respects the best location for it. Such a fair would be more than any previous exposition seen in the New World, and may be expected to outrival even the present wonderful Paris exhibition. While the chief effort should be to bring together the three Americas, the opportunity should be improved to show the American people the raw and manufactured products of the Old World.

Such an exhibition at our principal maritime port could not fail to have a vast influence in extending the commercial relations between the United States and the countries that exhibit. The Central and South American nations, in particular, would reap rich benefits by showing to our wealthy and enterprising Americans the remarkable opportunities for money-making which they offer. Americans with brains, energy and capital are wanted by all the governments "to the South of us," to assist in the development of their natural resources. These nations would also be deeply helped by such an instructive showing of the means whereby the United States has developed its own advantages. That vast and extraordinary nation in the South Seas, which ere many years will be recognized as the Republic of Australasia, will also be a heavy patron of the Exhibition of 1892. The older nations, ever striving to extend their commerce, and anxious to profit by the experience of the United States, have only to be invited, to secure their presence with specimens of their best work in all departments of human industry.

It is evident that Agriculture will be universally benefited by such a combined showing of the World's progress. With low rates of transportation, farmers in all parts of the three Americas could not afford to stay away from the great Exposition. It would be worth more to them than the combined State and local fairs of these nations for a decade. It would be a summary of the best features of all the fairs in all these countries, arranged and classified so that any or all departments of agriculture could be studied to advantage. It would, indeed, be a complete exposition of the Agriculture of the entire World, presenting to the best possible advantage the principal features and the most important progress of farming in all nations. And this would be so arranged that the visitor would see and learn more here in a week than in months, or perhaps years, of expensive travel. Yet the agricultural industries of the Americas and the other nations represented would form but a part of this unprecedented exhibit of the World's progress in the four hundred years since the landing of Columbus.

The AMERICAN AGRICULTURIST will spare no effort to secure such a fitting representation of the World's foundation industry at the Fair of 1892. Especially do we anticipate and request the cordial coöperation and assistance of the AMERICAN AGRICULTURIST'S constituency in foreign lands. We shall be happy to receive their opinions about the proposed World's Fair, and suggestions whereby it can be rendered most helpful to their interests. It is needless to add that a similar invitation is extended to our readers in the United States and Canada, who must be sure to let us hear from them.

The Business of Selling Produce.

Never before in the history of American Agriculture has the attention of farmers been so generally directed toward the improvement of what may be termed the business side of their occupation. The farmer's vocation may be said to lie in two lines—that of producing and that of selling the produce. It is evident that farmers have made far greater progress in the raising of crops than in their sale. The attention of agricultural societies and other organizations has, until within a very few years, been almost entirely devoted to teaching farmers how to raise better crops. The old saying was that a crop well raised was half way to market. But in these days of combination and competition, this hardly holds true.

The way in which the great bulk of farm crops is sold is utterly unbusiness-like. Instead of being disposed of in small lots to local speculators, in the condition in which crops and produce come from the farm, they should be accurately graded, the grade insured by a competent and disinterested inspector, and the produce sold direct to the wholesale or retail merchant or miller. This scheme is not only possible, but its practicability has been well demonstrated. The interesting article in the present issue about the Delaware Fruit Exchange shows how this has been accomplished on the Delaware Peninsula. It also points out some of the mistakes that have been made. We have in previous issues had some accounts of methods by which the grape crop of Western New York is handled. The Michigan Fruit Exchange, and combinations of small fruit-growers and truck-raisers in Illinois and Mississippi, are conducted in a similar way. The California Fruit Union has been very successful. Now the Florida Orange Trust is being organized, through a combination of the leading growers and wholesale handlers of oranges. The Heavy Leaf Tobacco Growers' Trust in Kentucky greatly reduced the area of this important crop last year, and secured better prices, and a similar result is again evident this season. The cigar leaf tobacco growers are also about to imitate the example. In the South and Southwest, the Farmers' Alliance is making strenuous efforts to handle the great cotton staple in the same manner. We also hear of milk trusts under consideration by the producers for several of our largest cities, while onion, potato and apple-growers are also endeavoring, through concerted action, to secure better prices by reducing the expenses between producer and consumer.

All these evidences indicate one of the changes that is to be witnessed in the business of farming in the next few years. Just as commercial enterprises find it cheaper and more profitable to combine and do business on a large scale, so will the farmers of the country. This principle is even more true of farmers than of ordinary classes of business, because the margin between the price the farmer receives for his ordinary unassorted produce and the market value of it when it reaches the consumer in its graded form, is far greater than in almost any other business.

The farmer demands better prices, and has only to investigate the present system of marketing to see wherein he can effect a large saving. It is not necessary to force up prices to consumers; the reduction of the margin between producers and consumers offers the encouragement the farmer needs.

The application of close business principles to the sale of farm produce is the next step in the farmer's march of progress. The teachers in our agricultural colleges should give special instruction on this important and heretofore neglected branch of the farm business. The present generation of older farmers can and will do much to regulate the inequalities and wastes of our system of marketing, but it is the rising young men to whom we must look for the perfection of this reform now being begun by their fathers.

The Farmer as a Politician.

Independence of party politics is growing among farmers in many sections of the country. This sentiment is more apparent and effective in non-presidential years, but in the national presidential election the farmers are still too much inclined to vote the straight ticket of their special party regardless of the position some of the candidates for local or State offices may hold toward the farming interests. Indeed, the so-called political workers have been wont to assure themselves that the farmers' vote is something that they can depend upon, because, as they say, it does not change.

The farmer should be not only an independent voter, but an aggressive politician himself. We use the word in its best sense. The farmer is too much inclined to let the nominating caucuses and conventions go by default. The nature of their occupation is such that many farmers do not care to attend even the local caucuses, because, as they say, the program is cut and dried beforehand by the ring in the village, county or city, as the case may be. This is all too true, and accounts in a great measure for the majority of professional men found in office, and also for the comparatively small number of farmer candidates. The

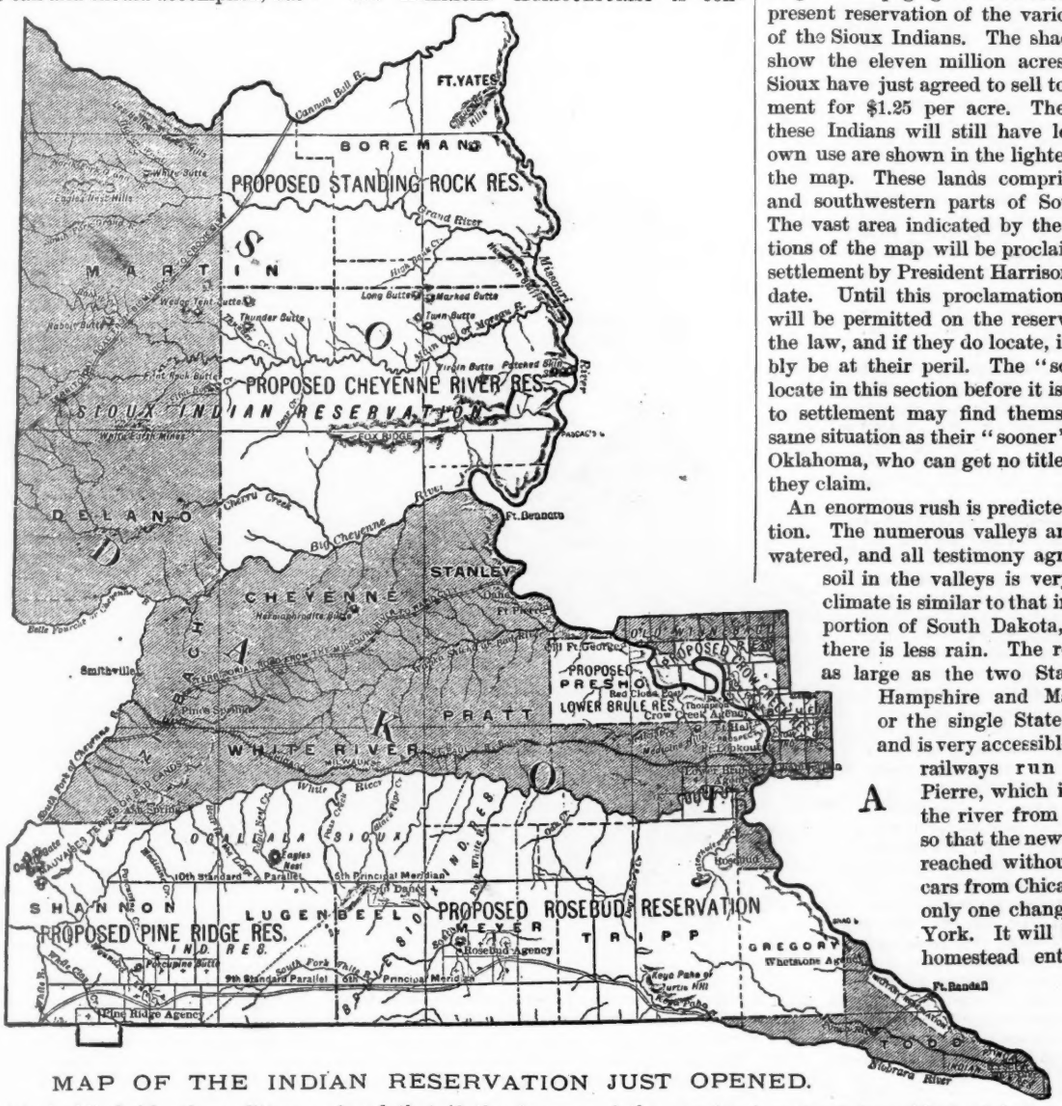
time is here when each individual farmer should come squarely to the front in political matters and make his influence felt. This is to be done not by staying at home until election day and then grumbling at the nominations, or perhaps scratching the ticket, but by first attending the caucuses at which delegates to the nominating conventions are appointed.

The practical beginning for the farmer in politics is therefore at home. There is much spread-eagle talk as to the farmer's power and what he can and should accomplish, but we are too apt to be blinded by these glittering generalities to the neglect of our duty at home as earnest public-spirited citizens.

A farmer's party is not wanted. No class of workers should constitute a political party in the United States. We are not a nation of classes, but our political parties are composed of all classes. But farmers do need to organize so as to agitate effectively. The Grange and the Farmers' Alliance have already proven vast engines for good in this respect. But after all these aids have been invoked, the matter comes directly home to the individual responsibility of each farmer, himself to act in co-operation with farmers so far as possible to secure the nomination and election of men who will not only be true to the interests of agriculture, but who will represent the whole people.

To do this the farmer must therefore be an active, working, genuine politician. The trouble with our politics is that men with selfish purposes have in many cases been allowed to dominate. This has been carried to such an extent that among certain good people there is a growing impression that to "go into politics" is to do something disgraceful. This is a wholly wrong idea. It is the duty of the citizen to be a politician to the extent that is necessary to secure good government.

The AMERICAN AGRICULTURIST is convinced that if the farmers of the country will act on this principle they can accomplish any desired and reasonable reform. They are numerically overwhelming, and it is their duty as free citizens of the Republic to exercise their power for the common welfare. But the place to begin is at home. When each individual farmer does his duty in politics, whatever organization or combination is necessary will easily follow.



MAP OF THE INDIAN RESERVATION JUST OPENED.

New Free Lands.

The rapid absorption of desirable public lands makes the throwing open to settlement of a large portion of the Sioux reservation a matter of vast importance. The map on this page gives a correct plan of the present reservation of the various divisions of the Sioux Indians. The shaded portions show the eleven million acres which the Sioux have just agreed to sell to the government for $1.25 per acre. The lands that these Indians will still have left for their own use are shown in the lighter portion of the map. These lands comprise the west and southwestern parts of South Dakota. The vast area indicated by the shaded portions of the map will be proclaimed open to settlement by President Harrison at an early date. Until this proclamation no settlers will be permitted on the reservation under the law, and if they do locate, it will probably be at their peril. The "sooners" who locate in this section before it is legally open to settlement may find themselves in the same situation as their "sooner" brethren of Oklahoma, who can get no title to the lands they claim.

An enormous rush is predicted to this section. The numerous valleys are quite well watered, and all testimony agrees that the soil in the valleys is very rich. The climate is similar to that in the eastern portion of South Dakota, except that there is less rain. The reservation is as large as the two States of New Hampshire and Massachusetts, or the single State of Indiana, and is very accessible. Two great railways run direct to Pierre, which is just across the river from Fort Pierre, so that the new lands can be reached without change of cars from Chicago, and with only one change from New York. It will be opened to homestead entry only, no settler being able to take more than one hundred and sixty acres. Already there is a great movement toward the reservation, and it is predicted that the rush for Oklahoma was as nothing compared to the sight that will be seen in the new free lands of South Dakota. But winter is near at hand, and there is likely to be much suffering among the settlers before spring.

The Most Profitable Culture.

The happy mean is always the most desirable. Extremes in both directions are unprofitable. These principles apply to farm work. The happy mean lies between the niggardly treatment of the soil and the too liberal use of labor and fertilizers, which comprise what is known as high farming or intensive culture. What is needed for profit is the most produce at the least cost. To strike the center of this aim requires the greatest skill and intelligence of the farmer.

Kind Words.

Cannot Keep House Without It.—Mrs. M. Whipple, Benton Co., Ohio, writes us: We have taken the AMERICAN AGRICULTURIST for many years and could not keep house without it.

The Best in the World.—We all think the AMERICAN AGRICULTURIST is the best agricultural paper in the world. The letters from near and far are especially interesting. E. E. STEADMAN, Washington Co., R. I.

SCIENCE IN FARMING.

Advance in South Carolina.

There are three South Carolina Experiment Stations under one management, with Prof. J. M. McBride as director. These have an annual income of $20,000, of which $15,000 is from the Hatch fund, and $5,000 from the State Department of Agriculture. This is divided into two equal parts,—the one for field experiments, which is equally divided among the three farms, and the other for salaries, scientific investigations, laboratory work and publications. The farms are centrally located in different agricultural belts,—the upper at Spartanburg, containing 300 acres, the middle at Columbia containing 120 acres, and the lower at Darlington containing 227 acres. Each of these farms has the necessary cottages, barns, silos and machinery for good work. The first report of these stations for the year ending December 31, 1888, makes a document of 298 pages. The botanist and entomologist, Prof. G. F. Atkinson, discusses the principal insects of State in a plain way, and tells how to fight them. Prof. R. H. Loughridge, the analyst of soils and seeds, has made a large number of interesting tests as to the purity and vitality of seeds. Grass seeds proved to be the poorest in purity and germinating power, some varieties consisting of nearly 50 per cent of trash or chaff. Clovers were next in poorness of quality. The tests with cotton have been especially complete. The report of the chemist, Dr. W. B. Burney, discusses feeding stuffs and gives the analyses of a large number of fodders peculiar to the State, together with fertilizing materials and insecticides. He introduces also the Jenkins table of American feeding stuffs, which cannot be too often republished. Some of the comments on the analyses of cow peas, vetches, etc., are very interesting to practical farmers. A large portion of the document is devoted to Director McBride's report of the field experiments with oats, wheat, corn, cotton and miscellaneous crops. These were conducted on quite an extensive scale, and where possible the average results on the three farms is given. In corn, for instance, it was shown that heavy doses of nitrogenous fertilizers cannot be profitably used on lands similar to those of the station farm, and also that cotton seed applied whole is equally effective as the more expensive ones. The Treasurer's report indicates that the Hatch fund has been well expended. South Carolina farmers can obtain this document on application to the station at Columbia. The Station proposes to conduct an interesting series of investigations with the corn crop, from samples grown by South Carolina farmers in the AMERICAN AGRICULTURIST Prize Crop Competition. The tests with thirteen varieties of cotton have now been conducted at the Station for five years, with great care to guard against errors. The Peterkin cotton has constantly maintained its superiority. The average results for the five years of the heaviest yielding kinds are as follows:

	LINT, LBS.	SEED, LBS.	LINT AND SEED, LBS.	PER CENT OF LINT.
Peterkin	481	804	1,285	37.69
Dickinson's Improved	429	945	1,374	31.35
Jones's Improved	423	966	1,389	30.66
Thomas	414	909	1,323	31.34
Duncan's Mammoth	405	855	1,260	31.92
Common	402	915	1,317	30.57

What the Stations are Doing.

The full report of the second convention of the representatives of American Agricultural Colleges and Experiment Stations, held at Knoxville in January, has been published by the United States Department of Agriculture for free distribution.

The tendency of experimental work is more and more in the direction of the soil. Indeed, the paragraph in the bill appropriating $15,000 to each Station under the Hatch Act provides "That as far as practicable all such Stations shall devote a portion of their work to the examination and classification of the soils of their respective States and Territories, with a view to secure more extended knowledge and better development of their agricultural capabilities." Out of this may grow a more earnest demand in the new States of the West for an agricultural survey.

There are 382 workers on the staffs of our 46 State Experiment Stations. These receive $585,000 annually from the United States Government and an average of nearly $150,000 in the form of State appropriations or from other sources. The number will be swelled by the Stations to be established in the new States of North Dakota, Montana and Washington.

An average yield of 12 tons of ensilage corn per acre was secured on a lot of 8½ acres at the Kansas Experiment Station last year. Assuming one acre to produce 24,000 pounds of ensilage, each animal consuming 34 pounds daily, and deducting 10 per cent for waste, it appears that one acre of corn put up in the form of ensilage will carry three cattle during the feeding season of 195 days, with a supply for 80 days more to spare. Of course this is exclusive of a small grain ration. Ensilage itself isn't a sufficient food where much is expected of cattle. Prof. Shelton, like many others, finds the best results when ensilage is fed with hay or other dry fodder.

HENRY P. ARMSBY.

The feeding trials at the Minnesota Station indicate that it pays better to put the ears of corn in the silo with the stalks than to husk them and handle the stalks as dry fodder. This simply verifies the experience of many practical cattle feeders in Ohio and elsewhere who for the last three or four years have made a practice of cutting up their ordinary field corn at the bottom, running it through an ensilage cutter, and putting it into the silo, ears, stalks and all.

Several of the stations have sent out bulletins the past summer giving instructions about how to fight various insect pests. These were well enough in their way, but in several instances were not issued in time to benefit the practical farmer. No effort should be spared to issue such documents sufficiently early. A good plan is to send out in advance a summary on a slip to every newspaper in the State for publication, with a note to the effect that the complete treatment of the pest will be given in the ensuing bulletin.

No evidence of adulteration was found in the large number of garden seeds critically examined at the Cornell Experiment Station (bulletin 7), and weed seeds were few and unimportant. "In some cases the sample had not been properly cleaned, but in general the more important were very free from impurities. The impurities were very largely immature and imperfect seeds. The average of impurities, by number, was found to be 2.76 per cent and by weight 1.38 per cent. The investigation appears to indicate that there is no necessity for seed-control stations in this country, for the purpose of preventing dishonesty and carelessness in the sale of garden seeds." This statement, it should be noted, does not apply to grass seeds and grains.

The office of Experiment Stations in the United States Department of Agriculture has already published several bulletins of special interest. These are divided into two series—one for scientific workers and the other for farmers generally. Our readers can obtain the latter free by making application to the Department of Agriculture, Washington, D. C. The first farmers' bulletin describes the what and why of the Stations, and a most instructive and interesting document it is. Among the publications for Station workers, but which must prove of special value to all interested in experimental work, is Document No. 5, which details the organization of the Stations throughout the country. Document No. 8 gives plain directions for co-operative field experiments with fertilizers, as adopted by the convention of Station directors.

Dr. Henry P. Armsby, the director of the Pennsylvania Experiment Station, whose portrait is published herewith, is a native of Northbridge, Mass., and is thirty-six years old. He was graduated at the Worcester Free Institute in 1871, taught chemistry there, took a two years' course in agricultural chemistry under Prof. Johnson at the Sheffield Scientific School of Yale College, and later completed an advanced course in the same studies at the University of Leipsic, in Germany. He was chemist to the Connecticut Experiment Station from 1877 to 1881, and for the next two years was principal of the Storrs Agricultural School at Mansfield, Ct., where he wrote his well-known book, "The Manual of Cattle Feeding." In 1883 he was elected to the professorship of agricultural chemistry in the University of Wisconsin, and associate director of the Experiment Station. He accepted his present position more than a year ago. Dr. Armsby is a conscientious worker and believes that the best work is accomplished by not undertaking too much.

The importance of the farmers' insect friends was never more strikingly illustrated than on the wheat crop during the present year. On June 30th the heads of wheat at the Michigan Experiment Station were crowded with plant lice, sucking the sap and very vitality from the forming kernels, thus threatening to blight the grain and in a few days to absolutely ruin it. But then the farmers' friends came to the front and in a very few days had almost annihilated the lice and saved the wheat, barley and oat crops. There were two classes of these insect friends—the predaceous insects that devour the lice, and the parasitic insects, that lay their eggs on or in their victims, which eggs hatch and the larval parasite feasts on the louse, which thus serves for both home and food. An excellent and plain description of these insect friends is given in Bulletin 51 from the Michigan Station.

Probably the cheapest warm wall for general farm purposes is one made of wood with a four-inch air-space, which is filled with dry sawdust or some other good non-conducting material. (Bulletin 7, Minnesota.) When a hollow wall is to be filled with sawdust or similar material, it is all-important that the material should be dry when put in, and then be so protected that it cannot get wet either from water coming in at the top or the sides. In making a dead-air space the sides of the wall should be tight, both inside and out, in order to prevent any circulation of air and to have it a true dead-air space. Dead air is the best of non-conductors, but its efficiency depends to a great extend upon the number of times it is broken up Dry sawdust gave good results as a filling for walls but chaff, or cut hay, or cut straw will do.

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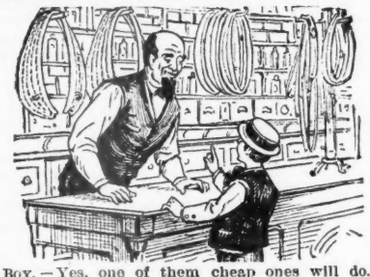

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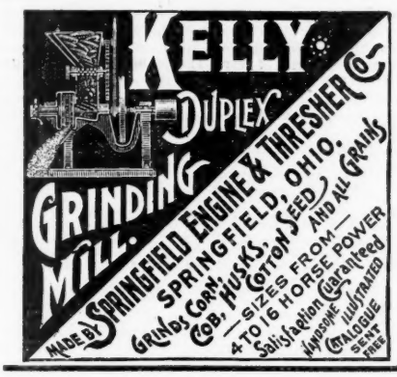

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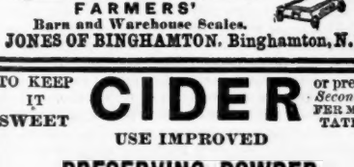

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MATTERS OF BUSINESS.

The Crops of the Year.

Cotton.—The August crop report of the United States Department of Agriculture makes the condition of cotton 89.3, an advance of nearly two points during the month, 100 representing perfection. Since 1880 this average has been exceeded but three times—in 1882, 1885, and 1887. Improvement is noted in five States, two report the same condition, while Virginia, North Carolina, Tennessee and Mississippi show lower averages than a month ago. Rains have been frequent and general during the month, except in portions of Texas, and in many districts have been excessive. Damage, wherever reported, is attributed to excess of moisture, and consequent inability to keep the crop clean. Some fear is expressed of too heavy a growth of stalk, rendering injury liable should dry weather set in. North Carolina has had too much rain, delaying cultivation, but cotton shows good growth. In South Carolina condition has been improved by good seasons, though there was some local damage from excess of rain. Alabama returns show the crop in promising condition—clean, with good growth, and fruiting well. Mississippi reports condition lower than a month ago, on account of excessive rainfall; the crop was late from slow germination, and on many plantations is now badly in grass, and not fruiting well. Louisiana has enjoyed frequent rains—rather too much for bottom lands—and the crop has a rank growth of weeds. Portions of Texas were in need of rain on the first of the month, though no damage had yet resulted; in other districts too much rain had put the fields somewhat in the grass, but a few days of dry weather would enable planters to remedy this. In Arkansas the early season was not favorable, and the plant was small and late; but favorable weather during July has placed it in vigorous condition, and it is improving rapidly. Tennessee's condition has fallen off during the month; the stand was generally poor and late, and excess of moisture has prevented proper cultivation. The caterpiliar and boll worm are occasionally mentioned in Mississippi and Louisiana, and in several counties of Texas, but damage from them is, as yet, inappreciable. The Department's averages of condition on August 1st and the preliminary June estimate of acreages lead to the following comparisons:

	AUGUST 1. CONDITION.		ACREAGE.	BALES OF 450 LBS.
	1889.	1888.	1889.	1889.
Virginia	63	84	42,351	9,882
North Carolina	80	82	1,070,562	337,822
South Carolina	90	84	1,644,872	519,048
Georgia	91	90	2,964,960	898,299
Florida	95	92	259,990	59,509
Alabama	90	90	2,846,040	879,110
Missi-sippi	88	92	2,597,185	886,506
Louisiana	92	90	1,091,455	409,902
Arkansas	93	93	1,422,096	591,898
Texas	91	79	4,170,818	1,723,814
Tennessee	78	93	881,473	295,783
Missouri, etc.	85	92	79,016	25,987
Average and totals	86	88	19,068,818	6,637,560
1888			19,058,591	6,520,051
1887			18,641,067	6,306,150
1886			18,454,603	6,438,000
1885				6,575,691

Corn has made an improvement during the past month of 4½ points, to 94.8, and is now less than one point lower than at the same date last year. The August return of condition has not stood more than one point higher during the past nine years, and the present return has been equalled but three times during that period. The improvement is quite generally distributed throughout the country, following favorable growing weather and sufficient rainfall. In a few States, especially along the Atlantic coast, condition has been somewhat reduced from excessive rainfall and local floods and overflows, while in many other districts where improvement is noted, similar causes have prevented full cultivation and thus lowered what otherwise might have been nearly perfect condition. In Ohio, Michigan and Indiana, the results of early meteorological conditions are being overcome, and the crop prospect is rapidly improving. The drought, which in portions of the Northwest threatened the crop, has been broken by seasonable rains, and the present returns show high condition in that section.

The condition in Texas, 99; Tennessee, 98; Kentucky, 97. The average condition in the seven corn-surplus States is 95, against 90 in July, and 96 for August, 1888. Basing our estimates on the Departments' returns, the AMERICAN AGRICULTURIST arrives at these conclusions and comparisons as to the corn crop in the principal corn-surplus States and the whole country:

	AUGUST. CONDITION.	ACREAGE	YIELD. (BUSH.)	LAST YEAR'S CROP. (BU.)
Ohio	87	2,931,000	84,705,900	93,018,000
Indiana	87	3,575,500	107,622,550	125,478,000
Illinois	90	7,913,000	267,459,400	278,060,000
Iowa	100	7,968,800	280,861,200	278,232,000
Missouri	96	6,801 000	214,911,600	202.583,000
Kansas	102	96,125,500	181.314,800	158,186 000
Nebraska	101	4,257,000	149,846,400	144,217,000
Total	95	38,584,958	1,286,721,490	1,279,774,000
U. S.	94.8	77,000,000	2,009,700,000	1,987,790,000

Spring Wheat has suffered a further falling off during the mon h, to 91.2, the decline amounting to nearly three points. Condition is now nearly three points higher than in 1887, and one above that of 1886. With these exceptions, it is the lowest since the very small crop of 1881. Minnesota records some improvement since last report, but in Dakota there is a further decline from the same causes noted last month. Dakota is now the largest spring-wheat State, and the very low condition there reduces the general average. In the rest of the spring-wheat district condition is generally good—perhaps above the average for a recent series of years. The quality of the crop will be better than usual, especially in the extreme Northwest. The condition as given by the Department, with other conclusions of our own, compare as follows; but it is fair to add that the Dakota crop is believed by other authorities to be larger than the figures given:

AUGUST 1. CONDITION.	ACREAGE.	YIELD. (BUSH.)	LAST YEAR'S CROP.
Wisconsin....90	1,104,000	18,210,455	13,855,000
Minnesota....93	2 823,200	45,176,500	27,881,000
Iowa....94	2,504,682	38,067,000	24,196,000
Nebraska....91	1,598,700	21,104,000	14,508,000
Dakota....57	3,901,000	29,608,000	38,036,000
Totals....84.4	11,931,582	152,165,955	118,476,000

Oats.—The condition of oats, 92 3, while two points lower than reported last month, is higher than in August of any year since 1885. In many sections the crop suffered from heavy winds and rains about harvest time, and the next report may show damage from this cause not yet appreciated. Probably about 27,150,000 acres have been sown to oats, and the crop will average fully 26¾ bushels per acre, against 26 bushels on 26,988,000 acres last year. The total crop will be 731,170,000 bushels against 701,735,000 bushels in 1888.

Other Grains.—The condition of rye fell off one point during July, being 95.4 the 1st of August. Barley also declined one point, to 90.6, and will yield 19 to 20 bushels per acre. The decline on both was mainly in Nebraska and Dakota. This means a serious shrinkage in the United States crop of barley, and instead of consuming 11,363,000 bushels of foreign barley (mostly from Canada), as we did last year, we may need at least two million bushels more. Rye will yield an average of 12½ bushels per acre, or a total of 26,000,000—one million bushels more than in 1888. Buckwheat will be a better crop than last year. The bean crop is seemingly damaged by rain.

Potatoes.—"This crop has maintained its high condition of a month ago, and now stands one point higher (94.3) than at this date last year." Such is the Department's statement, but it is based on reports dated August 1st, and many of which were sent in a few days earlier. Just about the 1st of August blight struck the potato crop throughout New England and the Eastern and Middle States. This will seriously affect the yield, as rot is much complained of. If there are 2,500,000 acres in potatoes, as the Department estimates, the crop cannot exceed 167,500,000 bushels, compared with 196 000,000 last year, and 134,103,000 bushels in the remarkably short crop of 1887, which averaged only 56.9 bushels per acre.

Tobacco has fallen off materially on account of excessive rain. The decline is especially marked in the Atlantic States and in Indiana. Fields are full of weeds, and there has been a lack of sunshine for proper development. The averages of condition in the leading States are: Pennsylvania, 99; Maryland, 66; Virginia, 80, Kentucky, 81; Ohio, 93; Indiana, 55; Wisconsin, 93. There was a large curtailment in the acreage of heavy-leaf in the Middle and Southern States. The Seed-Leaf or Cigar-Leaf acreage is about normal, and if frosts hold off, the crop will be good in yield and quality.

Other Crops.—Special reports to the *New England Homestead* indicate considerable falling off in the area of Onions, owing to last year's big yield and low prices. The present crop is much less in yield in most sections, and the general outlook for prices is far better than last fall. The wet weather has greatly damaged the crop of onion seed, and prices are bound to materially advance. The Apple crop is also much below last year's enormous yield, not only in the great apple belt of the United States, but in Ontario and Nova Scotia. The Hay crop throughout the country has been in excess of any previous year.

Notes as to Supply and Demand.

The Indiana Paint and Roofing Co. of this city have recently removed to 42 W. Broadway. This is one of the oldest houses in the business and is considered thoroughly reliable.

A Salary with expenses paid will come handy to any one who is now out of employment, especially where no previous experience is required to get the position. If you want a position, see advertisement on Page 465, "A Chance to Make Money."

Harnessing the Winds.—The Perkins Wind-Mill and Ax Co., of Mishawaka, Indiana, manufacture the Perkins Wind-Mill, a strong, well-made, self-regulating mill of which every one sent out is warranted. Address as above for circular and prices.

Bright and Sharp.—Every one should carry a good knife, and if he is as sharp and bright as the knife, he will buy it of Maher & Grosh, Toledo, Ohio. Their knives are not only the best, but as they deal directly with the buyer, they are the cheapest. Write for their illustrated free price-list.

An Important Enterprise.—A new company has been incorporated in Springfield, Ohio, under the name of the Springfield Implement Company. Its object is the manufacture of agricultural implements. The officers are as follows: President and treasurer, Col. A. W. Butt; vice-president, J. E. Heffelfinger; secretary, John B. Clingerman; superintendent, L. B. Corry. Col. Butt has been for many years connected with the house of P. P. Mast & Co., and the other corporators are gentlemen of large experience in manufacturing. The company will make hay-rakes, cultivators, feed-mills, and a large line of other implements.

Sweet Cider.—To prevent fermentation and thus keep cider sweet, the Improved Preserving Powder of W. Zinsser & Co., New York, is largely employed. It is in common use by the largest cider-makers in the country, and we have been assured by high authority that its proper use does not affect the taste of the cider in the least.

The Farmers' Favorite.—The seed-drill has become an established success, saving at least a peck of seed per acre, and leaving the field in much better shape than broadcast sowing. One of the best drills in market is the "Farmers' Favorite," made by Bickford & Huffman, Macedon, N. Y. Their drills are well made, of the best materials.

Kelly's Duplex.—A wonderfully rapid and effective grinding-mill is "Kelly's Duplex," made by the Springfield Engine & Thresher Co., of Springfield, Ohio. It grinds on both sides of the revolving burr, giving double grinding surface, and can reduce from eight to fifty bushels of corn and cob an hour. A new and valuable handbook for farmers is sent free on application as above.

Woven-Wire Fencing.—The very ideal of fences and gates are the Sedgwick steel wire, manufactured by Sedgwick Brothers, Richmond, Indiana. They are neat and elegant in appearance; no dog can get through or over them; they are smooth and harmless to stock; occupy the least possible space; are easily put up, and extremely durable. For farm, poultry-yard, sheep-pens and other purposes they are unsurpassed.

Steam vs. Muscle.—A steam-engine furnishes a motive-power quite as useful for many parts of farm work as for the factory. Besides the mechanical power of the engine, the surplus or waste steam is useful in many ways. Among the best farm-engines in the world are those built by James Leffel & Co., Springfield, Ohio. Every one who contemplates the purchase of an engine should send for one of their illustrated pamphlets, which are furnished free.

The Scientific Grinding Mill.—The Foos Manufacturing Company, of Springfield, Ohio, continue to make the mill which has well won its title of "Scientific." It takes in the ears of corn just as they are picked in the field, and grinds cobs, shucks and grain all together, producing a food article far more digestible, and safer than clear corn meal. It also grinds all other kinds of grain. All the mills are compact, well-built and substantial.

Drain Tile and Pipe.—No better porous drain tile or vitrified pipe are made in the world than those of Jackson Brothers, Albany, N. Y. The New York State Drain Tile and Pipe Works have long been eminent, and the new and improved machinery now used there enables them to turn out better work than before. The products of these extensive works have carried off the premiums in all competitions and well deserve the high reputation they have won.

Preparing for the Silo.—No one who observes the rapid increase in the use of the silo can doubt that it has come to stay. The only question remaining is how to make silage at the best advantage. One of the indispensable conveniences is a good cutter and carrier. Those made by the Silver & Deming Manufacturing Co., of Salem, Ohio, are among the best. They cut the silage to the desired length, and by the aid of a carrier, deposit it within the silo, rapidly and perfectly. Their cutters are equally useful for cutting dry fodder.

Buggies and Harness.—We call the attention of our readers to the advertisement of the Wilber H. Murray Mfg. Co., manufacturers of buggies and harness, which appears in this issue. Our readers can rest assured that this firm will do just what they say, and their prices are remarkably low. Those who have bought goods of this concern report that the goods are fully up to representation and cannot be beaten for the money. This is one of the most enterprising manufacturing companies in Cincinnati, O., and they are not afraid to spend their money advertising in such an excellent agricultural paper as the AMERICAN AGRICULTURIST.

Protecting the Export Cattle Trade.—Splenetic or Texas fever has existed the present summer in quite an area in Arkansas, Indian Territory and Texas, but stringent regulations to protect the industry in other sections against the disease by transportation or otherwise, have been vigilantly enforced by the United States Department of Agriculture. Further safeguards—especially for cattle intended for export—are now being taken by the railroads, at the suggestion of Secretary Rusk, dated August 10. Such cattle are now carried in disinfected cars, and one yard in New York has been set apart exclusively for export cattle. There is thus absolute certainty that no diseased stock will be exported. Secretary Rusk remarks: "The number of cattle shipped to Europe has rapidly increased, and the trade is probably more promising than ever before. This relieves our markets, gives new vigor to the cattle industry, and proportionally increases the business of transportation companies."

Dealers say farmers would rather buy poor horse blankets than pay a few cents more for strength. Do they tell the truth?

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having spring or running water can have the water conveyed to their premises by using a Hydraulic Ram. More than 800 different styles. **Lift and Force Pumps, Hydraulic Rams, Etc.** Send for circular and prices.
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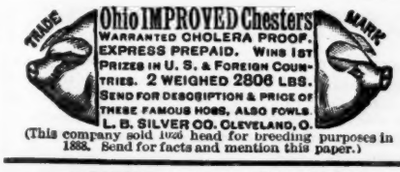
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Farming in Foreign Lands.

Peru is making large efforts to stimulate her agricultural industries. Under a new law which has just gone into effect, no duties will be charged on animals imported for breeding purposes, on agricultural machinery of all kinds and on seeds and plants.

A "fruit silo" is an excellent idea adopted from Italy into orange-growing countries. The fruit is cut from the tree (not pulled) and wrapped in tissue paper; it is then buried in sand, three tiers deep only, and the wrappers not touching. This method has fine results in the preservation of fresh fruit for a time of scarcity.

In New Zealand, where rabbits are a great pest, they are poisoned with malt, sown in furrows, as turnip seed would be sown; they feed at dusk and in the early morning. In a fortnight 10,000 rabbits were destroyed with only eight bushels of poisoned malt, on the Glen Erin estate, near Kyneton.

Cheese-making on Sunday is creating some adverse criticism in New Brunswick. The dairymen explain to the good but uninformed church-people who object, that the practice is a necessity, as the milk will not keep well over the lull of the Sabbath day. The practice is not common in our own dairy sections.

A superior system of forestry is in operation by the government of Cape Colony, whereby the ax is applied to forests in sections and sub-divisions, and never to a re-growth until it has attained perfect maturity, a period which has been fixed at forty years. Arbor day has been introduced, and is as enthusiastically observed as it is in Nebraska, the State in which Arbor day originated.

Labor is carefully classified on French farms. Laborers are usually hired by the year, and in addition to their wages are given the use of a cheap house, with potatoes, some grain and a bit of land for a garden. The average wages received by head farmers last year were $81 for the year and found; herdsmen and shepherds, $56; workmen and cheese-makers, $86; ordinary farm hands, $59, and woman servants $47.

Further evidence of the profitableness of the live stock industry in Honduras is found in the experience of the Belgium Consul-General, who has been engaged in it for some years. He pronounces it a sure investment, and says it pays fifty per cent per annum. Native horses can also be bought very cheaply, and there is a demand for thoroughbred or improved horse stock, so that horse studs are destined to be very profitable.

Pasteur's system of inoculation for anthrax and splenetic apoplexy is being successfully introduced on a large scale in New South Wales. The experiments have been so successful that many stock owners are anxious to have their sheep vaccinated at once. Pasteur's agents offer to vaccinate sheep at the rate of six cents per head, of which four cents is for Pasteur's royalty, and two cents for the necessary expenses. At these figures, vaccination must prove pretty profitable to the operators.

How to go to the Fair.

Fairs will be held in the majority of States this month. If you can spare the time go to the State Fair, but no one should neglect the county or other smaller fairs. Most farmers can visit more than one. If you can go to but one, let it be the one that most needs help. Don't think that a day or two at the fair can be an offset for the vacation we have advised every farmer to take. Visiting a fair, whether as exhibitor or visitor, if done properly, will make one go home tired. An exhibitor should be ready to answer questions. Sometimes very puzzling ones are asked. If you ask questions wait and receive a reply. If possible, take as many of the family as can go to fairs. It is an excellent school for a bright child. In well-regulated fairs there is a place within the grounds for the safe-keeping of horses and vehicles. The wagon should be a headquarters for the family, a place of rest, and where the home mother shows her care by providing an abundance of wholesome food.

If one exhibits, he should recollect that rough board tables are generally about all the facilities that are afforded. If one is to exhibit fruits and flowers, everything else must be taken. Store boxes of various sizes, which should be low and lined with white wrapping paper, answer well for fruits, etc. For flowers, remove one end from old tomato cans, fill with damp sand and cover with paper; brown will answer as well as any other, and makes neat and effective flower vases. Carry along a box of sand, and do not forget white muslin or paper with which to cover the rough tables, tacks, nails, twine, cards for labels, hammer, pencils, pen and ink. If convenient, take along showy plants. If to stay more than one day, the wagon may serve as a lodging-house; take an abundance of warm bed covering. Provide plenty of coffee and tea; it will prove very refreshing when fatigued.

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Of any one suffering from scrofula, salt rheum, dyspepsia, headache, kidney and liver complaints, that tired feeling, or any disease caused or promoted by impure blood or low state of the system, is that you give Hood's Sarsaparilla a fair trial. We are confident that the medicinal value of this peculiar preparation will soon make itself felt through the system in restoring health, strength, and energy. Do not take other articles claimed to be "just as good," but be sure to get Hood's Sarsaparilla, which is peculiar to itself.

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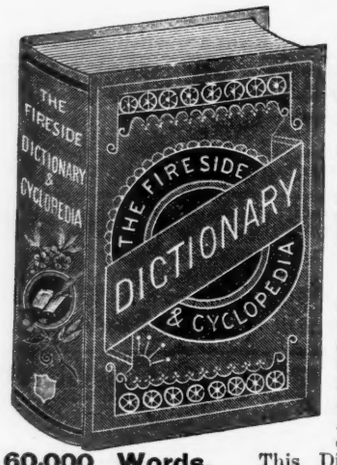

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SILOS, ENSILAGE AND SILAGE. A Practical Treatise on the Ensilage of Fodder-Corn. By Manly Miles, M. D., F. R. M. S. Illustrated. Cloth, 12mo. Price, post-paid, 50 cents.

The silo is well-nigh revolutionizing the business of stock-feeding and dairy farming. The most serious objections to the old methods of construction and operation have been largely overcome; the costly pits of masonry have been replaced by inexpensive wooden silos wholly above ground, and instead of the excessively sour product of the old processes, sweet and palatable food is now produced at reduced cost. But while this great advance has been going forward in construction and processes, the permanent literature of the silo has not kept pace with it. This compact treatise of Prof. Manly Miles will, therefore, be heartily welcomed by all progressive farmers. It contains in a few pages a comprehensive review of the entire subject of preserving green fodder in air-tight pits, a thoroughly scientific treatise on fermentation, and tells how to build a silo, how to raise the corn, and how to ensilage it. The stock-feeder or dairyman who tries to do without the silo is likely to be left in the race for success by the man who makes and feeds silage. The first step toward success in this direction is to obtain a clear, scientific and practical book like the one under notice. Published by Orange Judd Co. Price, post-paid, 50 cents.

Origin, Plan and Results of the Field and other Experiments conducted on the Farm and in the Laboratory of Sir John Bennet Lawes, Bart., LL. D., F. R. S., at Rothamsted, Herts.

No contributions to agricultural science have ever been made from any one source of such magnitude and importance as those of Lawes and Gilbert of Rothamsted, England. It is more than half a century since Sir John Bennet Lawes began his experiments, on a small scale, and forty-six years since Dr. J. H. Gilbert became associated in the work. During all these years the experiments have been pursued with care, intelligence and unceasing application, wholly at the cost of Sir John B. Lawes. The results form an imperishable monument to him. They have been announced to the world in various agricultural serials, notably in the pages of the AMERICAN AGRICULTURIST, but mainly in publications emanating directly from the experimental farm. Of the annual reports, none possess more interest for the practical and scientific farmer than the present one for 1889. It records among other matters the experiments on permanent meadow land, barley, wheat, oats, beans, clover, and other leguminous plants; turnips, sugar-beets, mangel-wurzels, potatoes, rotation, etc. This document has never before been offered for sale, and is now for the first time accessible to the general public through the enterprise of the Orange Judd Co. Imported and sold by Orange Judd Co.; 75 cents, postage prepaid.

CATALOGUES RECEIVED.

J. F. W. DORMAN, Baltimore, Md.: Illustrated catalogue of printing press, celluloid stereotypes, and general printing outfit.

JOHN W. DOUGLASS, 57 Beekman street, New York: Illustrated catalogue and price-list of all kinds of farm machinery and implements.

GARDNER & SONS, Osage, Iowa: Price-list of evergreen seedlings, fruit and ornamental trees, etc.

BENJAMIN HAMMOND, Fishkill, N. Y.: Circular containing important facts relative to linseed oil.

E. W. ROSS & CO., Springfield, Ohio: Ensilage and Silos. A neat pamphlet giving directions and valuable information about silos and ensilage, together with illustrations and descriptions of the various ensilage-cutters, carriers, etc., manufactured by this company.

S. T. SMITH CO., New York: Catalogue and price-list of caligraph and typewriter supplies.

UNITED STATES NURSERIES, Short Hills, N. J.: Special offer for recently-imported orchids.

WHITLOCK MACHINE CO., Birmingham, Conn.: Catalogue of new improved printing presses, and the champion paper-cutter.

STAVER & WALKER, Portland, Ore.: A handsome, richly-illustrated catalogue of 200 pages, comprising every imaginable implement and machinery for farm use.

Wagon and Harness. — T. R. L., Summit Co., Ohio, asks us where he can buy a good, and yet cheap, buggy and harness. We do not like to single out special manufacturers, as we believe all those who advertise in the AMERICAN AGRICULTURIST are reliable business men, and will give their patrons their money's worth; but if we lived in Ohio we should have but one choice, and that would be to go to Wilbur H. Murray Mfg. Co., Cincinnati, Ohio, whose advertisement appears on another page of this paper, and whom we believe unexcelled in their manufactures.

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IS Nature's effort to expel foreign substances from the bronchial passages. Frequently, this causes inflammation and the need of an anodyne. No other expectorant or anodyne is equal to **Ayer's Cherry Pectoral.** It assists Nature in ejecting the mucus, allays irritation, induces repose, and is the most popular of all cough cures.

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Shady Hill Nur eries, Cambridge, Mass.

One Hundred Orders a Day

Is common in our sales of our

BEAUTIFUL NEW TREES.

All our old customers will tell you **who has the very newest** and the most genuinely valuable hardy trees and shrubs for ornament. Every new hardy tree or plant that comes to sight, from any part of the world, is, at once, secured and propagated at our nurseries. If our good friends and patrons who love plants, could only go carefully through our propagating houses, and see the wonderful processes of multiplying the delightful things that have made "Shady Hill Nurseries" famous among plant lovers everywhere, they would remember it, as hundreds do, with enthusiasm.

Send 2 stamps for our two grand illustrated catalogues and have a feast!

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A CHANCE TO MAKE MONEY. **Salary and Expenses paid,** or Commission if preferred. Salesmen wanted everywhere. No experience needed. Address, stating age,
H. W. Foster & Co., Nurserymen, Box M, Geneva, N.Y.

BUDS OF WONDERFUL PEACH and other valuable fruits. Catalogue free. **W. C. PARRY,** Parry, N. J.

THE CREAM OF PEACHES.

WONDERFUL: large, very late, exquisitely beautiful, delicious—the only large, late, handsome, yellow, freestone Peach. LOVETT'S WHITE is likewise the only large, late, handsome *white* freestone. Both are sure and heavy bearers. The most profitable for market, invaluable for the home garden, unsurpassed for canning. Descriptive Circular free. Colored plates 6cts.

Nearly every variety of hardy Fruit and Ornamental Tree or Plant, old or new, worthy of culture, at half the prices of most traveling agents and many nurseries. An immense stock of Peach and other Fruit Trees. *Headquarters for Gandy (latest), Monmouth (earliest), Strawberries, Erie* and *Early King Blackberries, Carlough Apple, Spaulding and Abundance Plums, Meech Quince, Nut-bearing Trees, &c.*

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Plants by mail a specialty.

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N. P. BROOKS, Lakewood (Nurseries), N. J.

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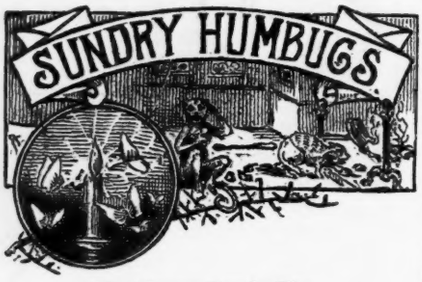
BULBS, SHRUBS, ROSES AND PLANTS,
FRUIT AND ORNAMENTAL TREES,
Remarkably fine and complete stocks of
PEARS, PLUMS, PEACHES CHERRIES,
APPLES, QUINCES, APRICOTS, MULBERRIES,
GRAPEVINES, SMALL FRUITS, ETC., ETC.
Introducers of the **CRAWFORD STRAWBERRY.**
SEND FOR FREE CATALOGUE AND PRICE LISTS. Correspondence solicited.
THIRTY-FIFTH YEAR. 700 ACRES. 24 GREENHOUSES.

Address THE STORRS & HARRISON CO., Painesville, Lake Co., Ohio.

THE SYRACUSE NURSERIES, OLD AND RELIABLE,

Are growing the largest and most complete assortment of Nursery Stock in America..

In **Budded Apples** and **Standard Pears,** they acknowledge no competition,—quality considered.
Nurserymen and Dealers will consult their own interests by getting prices on this superb stock, before buying.
SPECIAL INDUCEMENTS TO BUYERS IN LARGE QUANTITIES.
SMITHS, POWELL & LAMB, Syracuse, N. Y.



The Green-Goods Men.

The vigilance and activity of those engaged in breaking up the nefarious work of the "green-goods" swindlers are bringing success. Two more of the operators have been arrested and are awaiting trial, with plenty of evidence to convict. In the den of one of them was found a quantity of genuine new greenbacks, amounting to over four thousand dollars. These were used to "veneer" packages of blank paper, cut to the size of greenbacks. The work of hunting out the scoundrels has been greatly aided by those of our subscribers who promptly forward to this office the circulars received. In all cases the original envelopes should also be enclosed, as they show the hand-writing and post-mark. Mr. John H. Duncan of Sumter Co., S. C., and Mr. H. O. Ayearst, Manitoba, forward us circulars which they received, singularly both having been received originally from the same sender in New York.

Bogus Live Stock.

W. L. Mauldin, Greenville Co., S. C., writes that he purchased a colley from a firm of live-stock dealers in eastern Pennsylvania, and the animal falls very far short of coming up to the guaranty. The firm has been a long time before the public, but has not acquired an enviable reputation for reliability. It is very discouraging and provoking to have inferior stock foisted on one. Too much care cannot be exercised in buying any kind of breeding stock, from a colley pup to a Jersey bull, to purchase of a reliable dealer. There are plenty of high-minded, honorable breeders and dealers in the country, and it is the well-deserved and high reputation they have won which enables a few adventurers to work off scrub animals upon the public. Look out for them.

Autumn Humbugs.

Autumn is the farmers' harvest and the frauds' seed-time. As the farmer counts up his profits, the fraud is busy inventing and floating schemes to secure a portion of the same. The sharper lays his plans early in the fall, and usually expects to make enough before New Year's to support him in easy style through the coming twelve months. September and October may be called the spawning season of the fraud. Those who attempt to steal and rob on a grand scale, commence to operate early in the summer, and conduct a passably fair and honest trade until about the middle or last of October, when they begin to execute the real intent and plan of their scheme, to wit:—to defraud the people out of their money. They usually begin by failing to fill orders for those far away from New York, or other home office of the fraud. They generally have a day fixed in the future for a cessation of business, either a bogus bill of sale, an assignment, failure, or the fraud does all of these and then hangs around where he can get letters, so long as the dupes continue to send money. The moment danger of arrest comes, then "good by" dupes, business, letters and all, and they fly the country. The fraud calculates upon being able to keep his customers quiet for about a month, by promises to "send in a few days," "we are just out of this particular article," "we expect a new importation," "unprecedented sales have depleted the market," etc. The first he robs are the far away customers, then, as the day of the final "bust up" approaches, those nearer; and at the last, he fills no orders but those they call "kickers," that is, parties complaining to the authorities. Be careful about sending money in advance for goods to unknown parties.

One Item Pays for a Year's Subscription.—I assure you that the AMERICAN AGRICULTURIST is our constant reference here, and many times we get one item that pays for a year's subscription.

W. J. C., Villa Wood, Nova Scotia.

Animal Ailments.

Measly Pork.—When rains are frequent and the weather is hot, the pig-sty utters a warning voice, in a profusion of offensive odors. Naturally, the pig is neat and cleanly in his habits; but compulsion deprives him of his inclination to live a life of cleanliness. He requires a dry, elevated bed of straw, renewed at least once a week, and daily water in warm weather. His open yard may be freely littered with all sorts of weeds and barnyard raking, which he promptly converts into excellent manure. The pig fattened for family use, must be kept clean, and regularly fed three times a day on good sound food to yield good pork. In this way, measly pork need not be feared.

Malignant Sore in the Eye.—Mrs. John Evens, Tangipahoa Parish, La., writes to learn what could be done for an ox that had a little speck like a wart in the corner of the eye, that for the past two years had increased so as to close the eye, having become as large as a pint cup, causing a most offensive odor, so disgusting as to prevent the valuable service of an excellent work-ox. We reply, that the case was a simple wart which could have been removed easily by tying with silk, or removed by caustic or the knife, by a veterinarian, so that relief would have been prompt and sure. But neglect, and constant irritation resulted in, probably, a malignant disease, which may not now be removed and cured by the most expert surgeon. We have again to advise our readers to practice that prompt care and considerate attention which emanates from a sense of humane duty to our valuable domestic animals. Call the veterinary surgeon at once.

Umbilical Hernia.—H. Trower, Douglas Co., Col., asks if anything can be done for a four-months-old mare foal suffering from umbilical hernia. The rupture of the navel is small, but the intestine protrudes, but is easily returned by pressure of the fingers. As there is no veterinarian within 200 miles, we gladly indicate the proper treatment. A truss can be easily made by smoothly forming with hard wood a half-ball the size of a base-ball; to this should be tacked a strip of leather so that the round part shall cover the rupture. Of course, the intestine must be carefully returned before applied. That the movements of the belly may not be interfered with during respiration, a piece of rubber webbing must be attached to the surcingle on each side of the truss. This surcingle should be broad and smooth, and held in place by a collar, back-strap and crupper, all securely attached. If properly and constantly applied, a perfect cure will be effected in a few weeks.

Calves in Poor Condition.—Complaint is frequently made by correspondents, that their young calves do not do well, though well-fed and out to excellent pasture. There are two prominent reasons why they do not do well. If fed milk, the milk-pail is rarely or never cleansed, and the high temperature of the season produces the rapid generation of acids pernicious to the delicate digestive organs of young calves, producing indigestion or diarrhea. Another course injurious, is the too-constant exposure to the noonday sun. Even adult cattle require shade in the pasture. The milk of cows running in unshaded pastures is abnormal. It becomes changed in character, so that neither good, healthy milk nor sound butter can be secured. Shade and bushes in the pasture largely protect cattle from the annoyance of flies. Calves as well as cows and other cattle require a full and free supply of good cool water all the year round, and especially in summer. Let him, then, who suffers from thirst remember that his poor defenseless kine likewise suffer, and that the quenching of feverish thirst is alike both grateful to man and brute.

The New Cattle or Horn Fly.—This new pest is a small fly, half the size of a house fly, which settles in great numbers around the base of the horns and other portions of the body where it cannot be reached by either the tail or the head of the animal. It sucks a moderate amount of blood, reduces the condition of the cattle, and lessens the yield of milk from one-third to one-half. It has been investigated the present summer by the Department of Agriculture, through the Acting Entomologist, L. O. Howard. He finds that the fly lays its eggs usually at night, in freshly-dropped cow-dung, and that for the development of the egg, through the maggot stage to the perfect fly again, a space of only twelve days is necessary. This rapidity of reproduction accounts for the wonderful numbers in which these flies appear, and it follows with reasonable certainty that the insect will pass the winter in the quiescent stage at the bottom of dung dropped late in the fall (the approximate date to be determined later). The preventive is obviously to lime the dung in the fall in places where the cattle preferably stand at night. At the present time applications may be made to milch cows and valuable animals which will keep the flies away. The applications may be (1) fish-oil and pine tar, with a little sulphur added; (2) tobacco dust, when the skin is not broken; (3) tallow and a small amount of carbolic acid. The latter application will also have a healing effect where sores have formed.

Hog Cholera and Swine Plague.—These are two distinct diseases, but are often confounded. Each is caused by a minute germ, but the hog-cholera germ is distinct and different from the germ of swine plague. The honor of discovering these germs is ascribed to Dr. D. E. Salmon, of the Bureau of Animal Industry of the United States Department of Agriculture, whose methods of investigation have been all that could be desired. Dr. F. S. Billings, of Nebraska, himself a distinguished investigator, has denied the existence of the swine-plague germ because he could not find it in his hogs, but that was his own fault. Dr. Billings was the first to claim that hogs could be protected against cholera by inoculation from diseased subjects. But this practice is a bad one, because it makes every hog so inoculated a means of spreading the disease. It has been found, however, that the cholera germ may be propagated in artificial preparations. Hogs inoculated with this artificially-prepared virus appear to possess immunity against the disease and also to be unable to spread it. This last fact is not thoroughly demonstrated yet, but is believed to be the great discovery that will afford a practical remedy for or preventive of hog cholera. Dr. Salmon's plan of disinfection or quarantine affords no practical protection against the disease. Such, in brief, are the conclusions (after six months' work) of the special commission appointed by the United States Department of Agriculture last winter to investigate the work of the above-named experts. The commission consisted of Prof. T. J. Burrill, of Illinois, Dr. E. O. Shakespeare, of Philadelphia, and Prof. B. M. Bolton. The personal character and professional attainments of these men render their conclusions beyond cavil.

Helpful Hints.

How to Grind.—The Nordyke & Marmon Co., of Indianapolis, Ind., has issued a useful mill book, with brief directions about grinding. It also tells all about the portable mills, of which the company manufactures twenty-eight sizes and styles. The grinding surfaces of all are of French Burr stones, and perform the best possible work.

New Arms and Legs.—If a claw or leg of certain crustaceans is removed, nature supplies the deficiency by a new growth. What nature thus does for the lower forms of life, art performs for the human race. The artificial legs and arms made by A. A. Marks, 701 Broadway, New York, are so skillfully constructed that the substitution of one for the original member can scarcely be perceived by an observer. The rubber feet completely supersede the old methods with complicated ankle joints.

An Ear-Splitting Device.—Lord Dundreary objected to feeding corn in the ear—he thought it ought to be fed in the mouth. But there is a real difficulty in feeding ears of corn. To crush and masticate one requires an immense amount of mechanical force in the jaws of the animal. This is overcome by the Dexter Corn-Splitting Machine, made by Neson & Poindexter, Indianapolis. It runs by hand; splits the ear, lengthwise into two, four or five pieces, leaving it in the best form to be masticated by stock. It is simple, easily worked, and very durable.

Harvest Excursions.—The Chicago & North Western Railway offers exceptional opportunities for an inspection of the cheap lands and growing business centers of Iowa, Minnesota, Nebraska, Wyoming, North and South Dakota, Colorado and the far West and Northwest, by a series of Harvest Excursions, for which tickets will be sold at half rates, or one fare for the round trip. Excursions leave Chicago, August 6th and 20th, September 10th and 24th, and October 8th. For full particulars apply to any ticket agent, or address E. P. Wilson, General Passenger Agent Chicago & North Western Railway, Chicago, Illinois.

BOOMING!!!

Yes, that's the only word that will express it. We did more business last month than any month since our existence. WE HAVE BEEN ALMOST RUSHED TO DEATH WITH ORDERS, IN FACT WE HAVE ACTUALLY GOT BEHIND, AND ARE NOW COMPELLED TO STILL FURTHER

ENLARGE AND IMPROVE OUR MAMMOTH WORKS

and the end of this month will see us in better shape to fill orders than any factory in existence.

We think we hear you say, "WHAT REMARKABLE SUCCESS THE 'MURRAY' PEOPLE HAVE HAD," and we say in reply, there is nothing remarkable about it. WE SIMPLY STARTED OUT TO DO AN HONEST, STRAIGHT-FORWARD BUSINESS, TO SELL OUR "MURRAY" BUGGIES AND HARNESS solely on their merits and low prices; to STICK TO THE PEOPLE and not to the **POOLS AND TRUSTS** which are only to "ENRICH THE RICH" and "IMPOVERISH THE POOR."

By the Latest Improved Machinery, Skilled Workmen and Long Experience in the BUGGY and HARNESS business, we are enabled to put the PRICES THAT DEFY COMPETITION. "MURRAY" Goods on the market at SOME PRICES that TALK.

BUGGIES!

If you value your money, don't buy elsewhere before seeing our Catalogue.

$15.00 for one of the best Road Carts made.

$55.95 for either a Side Bar or End Spring Murray Buggy.

$108.00 for our Murray Canopy Top SIDE BAR SURREYS

$109.00 for our elegant Jump Seat Surrey

We're not afraid to show our prices, for we know they can't be beat.

! ! $66.90 ! !

We're the only Factory in the U. S. that CAN DO THIS!!!

Just think, sixty-six dollars and ninety cents for a "Murray" Brewster Side-Bar Top Buggy, and a set of "Murray" Single Strap Track Harness. It seems strange, but it's true, and we are the only Firm that can do it.

HARNESS!

If you want the Best and Cheapest, buy of us.

$5.95 for our No. 1 Murray Single Buggy Harness

$9.85 for our No. 2 Murray Single Buggy Harness

$10.95 for our No. 3 Murray Single Buggy Harness

$15.20 for our No. 4 Murray Double Buggy Harness

$19.80 for our No. 5 Murray Double Buggy Harness

Remember that every Harness that leaves our factory is made of the best NO. 1 OAK TANNED LEATHER.

HONEST GOODS, LOW PRICES and COURTEOUS TREATMENT TO OUR CUSTOMERS is our motto.
Call and see or write to us for our Catalogue and Price List. We sell direct to the consumer.

WILBER H. MURRAY MANUFACTURING COMPANY, CINCINNATI, OHIO.

Save Your Money

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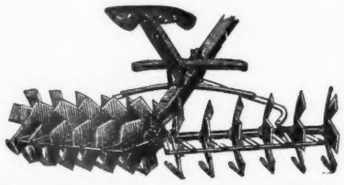

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10,000 IN USE.

Supersedes the plow; no other tool compares with it; no farmer can afford to be without it; entirely new principles; ground made into a perfect seed-bed. Has a Seeding Attachment for sowing all kinds of grain.
Send for new descriptive circular.
HIGGANUM M'F'G CORP., Higganum, Ct., Sole Manufacturers.
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CHEAP STRONG **WATER PROOF**, Applied by our new Patent method with ⅓ the labor of any other way. Unlike any other roof. No rust or rattle. An Economical and DURABLE SUBSTITUTE for PLASTER on walls. Ornamental CARPETS and RUGS of same material, cheaper and better than Oil Cloths. ☞Catalogue and Samples Free.
W. H. FAY & CO. CAMDEN, N.J.

MARK YOUR TOOLS WITH A STEEL STAMP, OR BURNING BRAND. PRICE LIST FREE. J.B. RONEY, LYNN, MASS.

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Engines, Wood-Planers, and Veneer Machines.

$160 Farmers' Saw Mill.

Hege's Improved Circular Saw Mill with Universal Log-Beam, Rectilinear Simultaneous Set-Work and Double Eccentric Friction Feed. Manufactured by the
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THE DEXTER CORN SPLITTER.

The most rapid Feed Preparing Machine in the market. AGENTS WANTED. Address
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To all interested in the culture and manufacture into syrup and sugar from this valuable crop, we call special attention to our **New and Improved Automatic Cook Evaporator for Steam.** It is the best and most economical Evaporator ever introduced. Address **The Blymyer Iron Works Co.**, Cincinnati, Ohio.

ROAD CARTS A $40 Cart for $15. Catalogue free. **Chicago Scale Co.**, Chicago, Ill.

State, County and Other Fairs in 1889.

PREPARED EXPRESSLY FOR THE AMERICAN AGRICULTURIST.

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STATE PROVINCIAL FAIRS.

Alabama	Birmingham	Oct. 21-Nov. 2
Alabama	Montgomery	Nov. 5-15
Am. Institute	New York	Oct. 2-Nov. 30
Arizona	Phoenix	Oct. 16-19
Arkansas	Pine Bluff	Oct. 22-25
California	Sacramento	Sept. 9-21
Canada	Toronto	Sept. 9-21
Colorado	Pueblo	Oct. 3-9
Connecticut	Meriden	Sept. 17-20
Dakota "South"	Aberdeen	Sept. 23-27
Dakota	Grand Forks	Sept. 17-21
Delaware	Dover	Oct. 1-4
Delaware	Wilmington	Sept. 2-7
Georgia	Macon	Oct. 23-Nov. 1
Illinois	Am. Fat Stock, Dairy, and Poultry Show	Chicago Nov. 12-21
Illinois	"Am. Horse Show"	Chicago Oct. 30-Nov. 9
Illinois	Peoria	Sept. 23-27
Illinois (Inter-State)	Springfield	Sept. 10-13
Indiana	Indianapolis	Sept. 23-28
Indian Ter'y	Muscogee Creek Nation	Sept. 24-27
Iowa	Des Moines	Aug. 30-Sept. 6
Iowa	Sank City	Sept. 23-Oct. 5
Kansas	Topeka	Sept. 16-21
Kentucky	Lexington	Sept. 27 31
Louisiana	Shreveport	Oct. 8-14
"Bay State"	Boston	Oct. 7-12
Maine	Lewiston	Sept. 10-13
Massachusetts	"Great New England"	Worcester Sept. 3-6
Massachusetts	"Horticultural"	Boston Sept. 17.20
Michigan	Lansing	Sept. 9-13
Minnesota	Hamline	Sept. 6-14
Missouri	St. Louis	Oct. 7-12
Minnesota	Minneapalis	Aug. 21 Sept. 28
Mo tana	Helena	Aug. 26-31
Nebraska	Lincoln	Sept. 6-13
Nevada	Reno	Sept. 30-Oct. 5
New Hampshire	Manchester	Aug. 27-30
New Hampshire	"State Grange"	Tilton Sept. 10-12
New Jersey	Trenton	Sept. 30-Oct. 4
New Jersey		
"Waverly Park"	Newark	Sept. 16-20
New York (Inter-State)	Elmira	Sept. 17-26
New York	Albany	Sept. 12-19
New York	"International"	Buffalo Sept. 3 12
Ohio	Columbus	Sept. 2-6
Ohio (Tri-State)	Toledo	Sept. 9-13
Oregon	Salem	Sept. 16
Rhode Island	Narragansett Park	Sept. 24-28
Rhode Island	Providence	Sept. 23-27
South Carolina	Columbia	Nov. 11-15
Texas	Dallas	Oct. 15-17
Texas	San Antonio	Nov. 5-16
Utah	Salt Lake City	Oct. 2-5
Vermont	Burlington	Sept. 3-6
Washington	Spokane	Sept. 23-28
W. Virginia	Wheeling	Sept. 9-13
Wisconsin	Milwaukee	Sept. 16-20
Wyoming	Cheyenne	Sept. 17 20

ALABAMA.

Buchanan	St. Joseph	Sept. 3-5
Madison	Huntsville	Oct. 15-19

ARIZONA.

Maricopa	Phoenix	Oct. 16-19

ARKANSAS.

Independence	Batesville	Oct. 22-25
Phillips	Helena	Oct. 22-26
White	Judsonia	Oct. 15-17

CALIFORNIA.

El Dorado	Placerville	Sept. 3-7
Fresno	Fresno City	Oct. 1-4
Humboldt	Rohnerville	Sept. 23-27
Inyo	Independence	Oct. 1-4
Napa	Napa City	Aug. 12-17
Nevada	Grass Valley	Aug. 20
Plumas	Quincy	Sept. 23-27
San Joaquin	Stockton	Sept. 24-Oct. 5
Santa Barbara	Santa Barbara	Oct. 1-4
Santa Clara	San Jose	Sept. 30-Oct. 5
Santa Cruz	Santa Cruz	Oct. 2-5
Shasta	Redding	Aug. 21-24
Sonoma	Sonoma	Aug. 20

CALIFORNIA DISTRICT.

San Luis Obispo	San Luis Obispo	Sept. 24-28

COLORADO.

Boulder	Boulder	Oct. 1-4
Larimer	Fort Collins	Sept. 24-27
Sagauche	Sagauche	Oct. 2-4

CONNECTICUT.

Fairfield	Danbury	Oct. 7-12
Fairfield	Huntington	Sept. 25-27
Hartford	Bristol	Sept. 30-Oct. 4
Hartford	Hartford	Sept. 24-26
Hartford	East Granby	Oct. 9
Hartford	Berlin	Oct 2
Hartford	Simsbury	Oct. 9-10
Hartford	Collinsville	Sept. 11-12
Hartford	Southington	Sept. 11-13
Holland	Stafford Springs	Oct. 8-9
Litchfield	Watertown	Sept. 24-26
Litchfield	New Milford	Sept. 10-12
Middlesex	Chester	Oct. 2
Middlesex	Clinton	Oct. 9
New Haven	Wolcott	Oct. 16
New Haven	Guilford	Sept. 25
New Haven	Madison	Oct. 2
New London	Norwich	Sept. 24-26
Tolland	Rockville	Sept. 30-Oct. 4
Windham	Brooklyn	Sept. 17-19
Windham	Willimantic	Oct. 1 3
Windham	So. Woodstock	Sept. 10-12

DAKOTA.

Clay	Vermillion	Sept. 17-20
Deuel	Gary	Oct. 3 5
Kidder	Steele	Sept. 20-23
Ransom	Lisbon	Sept. 25-27
Richland	Wahpeton	Sept. 24-26
Sanborn	Artesian	Sept. 12-24
Turner	Parker	Oct. 1-3
Union	Elk Point	Sept. 11-13

DAKOTA DISTRICT.

Campbell	LeGrace	Oct. 25
Lawrence	Deadwood	Sept. 23
Wells	Sykeston	Sept. 24-26

ILLINOIS.

Adams	Quincy	July 23-26
Boone	Belvidere	Sept. 10-13
Brown	Mt. Sterling	Aug. 26-30
Bureau	Princeton	Sept. 10-13
Carroll	Mt. Carroll	Sept. 9-13
Champaign	Champaign	Aug. 27-31
Coles	Charleston	Sept. 10-14
Christian	Pana	Sept. 10-14
Crawford	Fairgrounds	Sept. 24-27
DeKalb	Sycamore	Sept. 17-20
DuPage	Wheaton	Sept. 11-12
DeWitt	Clinton	Sept. 9-13
Edgar	Paris	Sept. 2-6
Effingham	Watson	Sept. 24-27
Fayette	Vandalia	Sept. 3-6
Franklin	Benton	Sept. 17-20
Fulton	Avon	Sept. 17-20
Gallatin	Shawneetown	Aug. 27-31
Hamilton	McLeansboro	Sept 10-13
Hancock	Carthage	Sept. 9-13
Henry	Cambridge	Aug. 26-29
Jasper	Newton	Sept. 10-13
Jersey	Jerseyville	Oct. 15-18
JoDaviess	Galena	Oct. 1-4
Johnson	Vienna	Oct. 8-12
Kankakee	Kankakee	Sept. 10-13
Kendall	Yorkville	Sept. 3-6
LaSalle	Ottawa	Aug. 13-16
Macoupin	Carlinville	Sept. 3-6
Marion	Salem	Oct. 1-4
McDonough	Macomb	Aug. 26-30
McHenry	Woodstock	Sept. 3-6
McLean	Bloomington	Sept. 17-20
Menard	Petersburg	Sept. 3-6
Mercer	Aledo	Sept. 17-20
Montgomery	Hillsboro	Sept. 17-20
Ogle	Oregon	Sept. 17 20
Perry	Pinckneyville	Oct. 8-11
Piatt	Monticello	Aug. 19-23
Pike	Pittsfield	Aug. 20-23
Richland	Olney	Sept. 17-20
Saline	Harrisburg	Sept. 3-6
Schuyler	Rushville	Aug. 19-23
Union	Jonesboro	Sept. 10 14
Wabash	Mt. Carmel	Sept. 3-6
Warren	Monmouth	Sept. 10-13
White	Carmi	Sept. 3-7
Whiteside	Morrison	Sept. 3-6
Winnebago	Rockford	Sept. 2-6

INDIANA.

Adams	Decatur	Sept. 25-27
Blackford	Hartford City	Aug. 27-30
Boone	Lebanon	Aug. 19-23
Clark	Charlestown	Sept. 2-6
Clinton	Frankfort	Aug. 26 30
Daviess	Washington	Sept. 23-28
Dearborn	Lawrenceburg	Aug 20-25
Decatur	Greensburg	Aug. 27-31
Delaware	Muncie	Aug. 20-24
Elkhart	Goshen	Sept. 24-27
Fulton	Rochester	Sept. 4-7
Fountain	Covington	Sept. 16-20
Gibson	Princeton	Sept. 9-14
Grant	Marion	Aug. 27-30
Greene	Linton	Sept. 2-6
Hamilton	Noblesville	Aug. 26-30
Hancock	Greenfield	Aug. 20-23
Harrison	Corydon	Sept. 9 13
Henry	New Castle	Aug. 13-17
Huntington	Huntington	Sept. 17-21
Jackson	Brownstown	Sept. 23-27
Jay	Portland	Oct. 1-4
Jefferson	Wirt Station	Sept. 3-5
Jennings	No. Vernon	Aug. 6-10
Johnson	Franklin	Sept. 17-21
Knox	Vincennes	Sept. 30-Oct. 5
Lake	Crown Point	Oct. 1-4
Laporte	Laporte	Sept. 10-13
Lawrence	Bedford	Sept. 10-15
Madison	Anderson	Sept. 2-6
Monroe	Bloomington	Sept. 16-20
Montgomery	Crawfordsville	Sept. 9-13
Newton	Morocco	Sept. 10-14
Noble	Ligonier	Oct. 8-11
Owen	Spencer	Sept. 9-14
Parke	Rockville	Aug. 19-24
Perry	Rome	Sept. 30 Oct. 5
Pike	Petersburg	Sept. 24-26
Porter	Valparaiso	Sept 24-27
Posey	New Harmony	Sept. 16-20
Randolph	Winchester	Sept. 3 6
Ripley	Osgood	Aug. 12-16
Rush	Rushville	Sept. 10-13
St. Joseph	Mishawaka	Sept. 16-20
Shelby	Shelbyville	Sept. 3-7
Spencer	Rockport	Sept. 23-28
Spencer	Chrisney	Sept. 30-Oct. 5
Steuben	Angola	Sept. 24-27
Sullivan	Sullivan	Sept. 9-14
Tippecanoe	Lafayette	Sept. 2-6
Tipton	Tinton	Aug. 15-17
Vermillion	Eugene	Sept. 2-6
Vigo	Terre Haute	Aug. 26-30
Wabash	Wabash	Sept. 24-27
Warren	W. Lebanon	Aug. 19-24
Warrick	Boonville	Oct. 7-12
Washington	Salem	Sept. 4-7

INDIANA DISTRICT.

Blackford	Montpelier	Aug. 13 17
De Kalb	New Castle	Sept. 4-6
Fountain	Covington	Sept. 16-20
Grant	Fairmount	Sept. 16-20
Greene	Bloomfield	Sept. 16-21
Hamilton	Arcadia	Aug. 19-23
Hamilton	Carmel	Aug. 21-23
Hamilton	Sheridan	Sept. 1-7
Henry	Knightstown	Aug. 27-31
Henry	Middletown	Aug. 6-9
Hendricks	No. Salem	Sept. 2-6
Howard	Poplar Grove	Oct. 1-5
Huntington	Warren	Sept. 3-7
Jasper	Remington	Aug. 27-30
Johnson	Urmeyville	Oct. 1-4
Kosciusko	Warsaw	Sept. 16-20
Marion	Acton	Sept. 10-14
Marion	Lawrence	Sept. 3-6
Martin	Loogootee	Aug. 27-31
Miami	Xenia	Aug. 2-23
Miami	Macy	Sept. 11-14
Montgomery	New Ross	Aug. 12-16
Newton	Kentland	Sept. 3-6
Noble	Kendalville	Sept. 30-Oct. 4
Orange	Orl-ans	Sept. 25-28
Parke	Bridgeton	Aug. 5-11
Posey	Mt. Vernon	Sept. 23-28
Pulaski	Francesville	Oct. 1-4
Rush	Manilla	Aug. 13-16
St. Joseph	So. Bend	Sept. 16-20
St. Joseph	New Castle	Sept. 4 6
Switzerland	E. Enterprise	Sept. 10-13
Vermillion	Newport	Sept. 30-Oct. 5
Wabash	N. Manchester	Sept. 30-Oct. 3
Washington	Pekin	Sept. 17-20
Wayne	Dalton	Sept. 10-13

IOWA.

Adams	Corning	Sept. 9-13
Allawakee	Waukon	Sept. 16-19
Appanoose	Centerville	Sept. 3-6
Audubon	Audubon	Sept. 13-21
Benton	Vinton	Sept. 10-13
Boone	Ogden	Sept. 13-20
Buchanan	Independence	Aug. 26-29
Buena Vista	Alta	Sept. 12-14
Butler	Allison	Sept. 9-12
Calhoun	Rockwell City	Sept. 18-20
Carroll	Carroll	Sept. 17-19
Cass	Atlantic	Sept. 10-13
Cerro Gordo	Mason City	Sept. 10-12
Clarke	Osceola	Sept 11-13
Clay	Spencer	Sept. 11-13
Clayton	Garnaville	Sept. 10-12
Clinton	DeWitt	Sept. 17 20
Crawford	Denison	Sept. 19-21
Dallas	Adel	Sept. 17-20
Davis	Bloomfield	Sept. 3-6
Decatur	Leon	Sept. 17-20
Delaware	Manchester	Sept. 10-13
Des Moines	Burlington	Sept. 9-13
Fayette	West Union	Sept. 3-6
Floyd	Charles City	Sept. 18-20
Franklin	Hampton	Sept. 17-19
Greene	Jefferson	Aug. 27-30
Grundy	Grundy Center	Sept. 17-19
Guthrie	Menlo	Sept. 24-27
Hamilton	Webster City	Sept. 17-20
Hancock	Britt	Sept. 17-19
Hardin	Eldora	Sept. 10-13
Harrison	Missouri Valley	Sept. 30 Oct. 3
Howard	Cresco	Aug. 27-30
Iowa	Marengo	Sept. 10-13
Jackson	Maquoketa	Sept. 10-13
Jasper	Newton	Sept. 17-20
Jefferson	Fairfield	Sept. 24 26
Johnson	Iowa City	Aug. 26-29
Jones	Monticello	Sept. 2 6
Keokuk	Sigourney	Sept. 10-13
Kossuth	Algona	Sept. 25-27
Lee	Donnellson	Sept. 3-6
Louisa	Wapello	Sept. 3-6
Lucas	Charlton	Sept. 24-26
Madison	Winterset	Sept. 30-Oct. 3
Mahaska	Oskaloosa	Aug. 26-30
Malcolm	Malcolm	Sept. 10-13
Marion	Knoxville	Aug. 20-23
Mill	Malvern	Sept. 24-26
Mitchell	Osage	Sept. 12-14
Monroe	Albia	Sept. 17-20
Montgomery	Red Oak	Sept. 16-20
Muscatine	Muscatine	Sept. 3-6
O'Brien	Sutherland	Sept. 11-13
Osceola	Sibley	Sept. 10-12
Page	Clarinda	Sept. 2-6
Page	Shenandoah	Sept. 10-13
Palo Alto	Emmetsburg	Oct. 2-4
Poweshelk	Grinnell	Sept. 9-12
Shelby	Harlan	Aug. 26-29
Story	Nevada	Sept. 18-20
Taylor	Bedford	Aug. 27-30
Union	Afton	Oct. 1-4
Van Buren	Keosauqua	Sept. 17-20
Wapello	Ottumwa	Aug. 19-23
Warren	Indianola	Sept. 24-27
Washington	Washington	Sept. 17-20
Wayne	Corydon	Sept. 9-13
Webster	Fort Dodge	Oct. 2-4
Winneshiek	Decorah	Sept. 10-13
Winnebago	Forest City	Sept. 24-26
Worth	Worthwood	Sept. 17-20
Wright	Clarion	Sept. 17-20

IOWA DISTRICT.

Adams	Nevinville	Sept. 17-19
Appanoose	Moulton	Sept. 17-20
Carroll	Manning	Sept. 10-12
Cedar	Mechanicsville	Sept. 10-13
Clayton	Strawberry Point	Aug. 27-30
Dallas	Perry	Oct. 1-5
Decatur	Leon	Sept. 17-20
Fayette	Brush Creek	Sept. 10-13
Harrison	Dunlap	Sept. 25-27
Henry	Winfield	Sept. 10-13
Jackson	Maquoketa	Sept. 10-13
Jones	Anamosa	Aug. 26-30
Keokuk	Richland	Sept. 17-20
Lee	Keokuk	Aug. 13-16
Mahaska	New Sharon	Sept. 24-26
Muscatine	W. Liberty	Sept. 10-13
O'Brien	Sheldon	Sept. 4-6
Powcshiek	Brooklyn	Aug. 29-31
Sac	Odebolt	Sept. 10-12
Scott	Davenport	Sept. 10-13
Scott	Mount Joy	Sept. 10-13
Tama	Traer	Aug. 27-29
Taylor	Lenox	Sept. 9-13
Van Buren	Milton	Sept. 10-13
Wapello	Agency City	Sept. 30-Oct. 3
Wayne	Lineville	Sept. 17-20
Wayne	Seymour	Sept. 24-27
West Point	Lee	Aug. 27-30
Wright	Eagle Grove	Sept. 11-14

ILLINOIS.

Hardin	Elizabethtown	Aug. 13-16
Iroquois	Milford	Aug. 20-23
Jackson	Carbondale	Oct. 1-4
Logan	Atlanta	Sept. 3-6
Randolph	Chester	Oct. 22-25
Vermillion	Danville	Sept. 3-7
Whiteside	Albany	Aug. 28-30

KANSAS.

Anderson	Garnett	Aug. 27-30
Atchison	Atchison	Sept. 9-14
Bourbon	Fort Scott	Oct. 1-4
Brown	Hiawatha	Sept. 3-6
Chase	"Cottonwood Falls"	Sept. 4-6
Clay	Clay Center	Oct. 1-4
Coffey	Burlington	Sept. 9-13
Cowley	Winfield	Sept. 3-7
Crawford	Girard	Sept. 24-27
Ellis	Hays City	Sept. 10-13
Franklin	Ottawa	Sept. 3-7
Harvey	Newton	Sept. 3-6
Jefferson	Oskaloosa	Sept. 10-13
Jewell	Mankato	Sept. 10-13
Lincoln	Lincoln	Sept. 25-27
Linn	Mound City	Sept 16-20
Montgomery	Independence	Sept. 9-13
Nemaha	Seneca	Sept. 17-20
Neosho	Erie	Oct. 9-11
Osage	Burlingame	Sept 10-13
Osborne	Osborne	Sept. 17-20
Ottawa	Minneapolis	Oct. 9-11
Phillips	Phillipsburg	Sept. 17-20
Pottawatomie	Wamego	
Rawlins	Atwood	Oct. 1-3
Reno	Hutchinson	Sept. 17 20
Rush	La Crosse	Sept. 18-20
Sumner	Wellington	Aug. 27-30
Shawnee	Topeka	Sept. 16-21
Smith	Smith Center	Sept. 18-21

KENTUCKY.

Adair	Columbia	Aug. 20-23
Anderson	Lawrenceburg	Aug. 20-23
Bourbon	Paris	Sept. 3-7
Boyle	Danville	Aug. 6-9
Breathitt	Jackson	July 4
Caldwell	Princeton	Oct. 9-12
Christian	Hopkinsville	Oct. 16-19
Daviess	Owensboro	Oct. 8-12
Fayette	Lexington	Aug. 27-31
Hardin	Elizabethtown	Sept. 10-13
Hart	Horse Cave	Sept. 17-20
Henderson	Henderson	Oct. 1-5
Henry	Eminence	Sept. 17-20
Hopkins	Madisonville	Sept. 25-28
Laurel	London	Aug. 28-30
Madison	Kirksville	July 26-27
Mason	Germantown	Oct. 1-5
McCracken	Paducah	Oct. 9 11
Nelson	Bardstown	Sept. 3-6
Ohio	Hartford	Oct. 2-4
Pulaski	Somerset	Sept. 10-13
Shelby	Shelbyville	Aug. 27-30
Union	Uniontown	Aug. 20-24
Warren	Bowling Green	Sept. 4-7

KENTUCKY DISTRICT.

Jefferson	Fern Creek	Aug. 20-22

MAINE.

Aroostock	Fort Fairfield	Sept. 3-5
Aroostook	Houlton	Sept. 25-26
Cumberland	Gray	Aug. 27-29
Cumberland	Naples	Sept. 4
Franklin	Farmington	Oct. 1-3
Kennebec	Augusta	Sept. 18-20
Lincoln	Damariscotta	Oct. 1-4
Oxford	Canton	Sept. 24-26
Oxford	Oxford	Oct. 1 3
Oxford	So. Paris	Oct. 1-3
Penobscot	E. Eddington	Sept. 25-26
Penobscot	Bangor	Sept. 3-6
Penobscot	Exeter	Sept. 24-26
Sagadahoc	Topsham	Oct. 8-10
Somerset	Skowhegan	Oct. 1-3
Waldo	Monroe	Sept. 24-25
York	Sanford	Oct. 1-4
York	Cornish	Aug. 27-29

MARYLAND.

Baltimore	Timonium	Sept. 3-6
Cecil	Elkton	Oct. 8-11
Frederick	Frederick City	Oct. 15-18
Harford	Bel Air	Oct. 8-11
Montgomery	Rockville	Sept. 4-6
Talbot	Easton	Sept. 24-27
Washington	Hagerstown	Oct. 14-18

MASSACHUSETTS.

Anne Arundel	Bay Ridge	Aug. 27-30
Barnstable	Barnstable	Sept. 24-25
Berkshire	No. Adams	Sept. 17-19
Berkshire	Pittsfield	Sept. 10-13
Berkshire	Great Barrington	Sept. 25-26
Bristol	No. Attleboro	Sept. 17-19
Bristol	Taunton	Sept. 24-26
Dukes	W. Tisbury	Sept. 3-5
Essex	Amesbury	Oct. 1-2
Essex	Beverly	Sept. 24-25
Franklin	Charlemont	Sept. 12-13
Franklin	Greenfield	Sept. 26-27
Hampden	Blandford	Sept. 11-12
Hampden	Palmer	Sept. 17-18
Hampden	Westfield	Sept. 18-19
Hampshire	Amherst	Sept. 19-20
Hampshire	Middlefield	Sept. 4-5
Hampshire	Cummington	Sept. 24-25
Hampshire	Northampton	Oct. 2-3
Middlesex	Framingham	Sept. 17-18
Middlesex	Lowell	Sept. 24-25
Middlesex	Concord	Sept. 25-26
Nantucket	Nantucket	Sept. 4-5
Plymouth	Brockton	Oct. 2-5
Plymouth	Hingham	Sept. 24-25
Plymouth	Bridgewater	Sept. 18-19
Plymouth	Marshfield	Sept. 11-13
Worcester	Oxford	Sept. 18-19
Worcester	Spencer	Oct. 3-4
Worcester	Fitchburg	Sept. 24-25
Worcester	Athol	Sept. 17-18

Worcester	Sturbridge	Sept. 12-13
Worcester	Barre	Sept. 26-27
Worcester	Clinton	Sept. 11-12
Worcester	Uxbridge	Sept. 24-25
Worcester	Worcester	Sept. 3-4

MICHIGAN.

Antrim	Bellaire	Sept. 11 12
Bay	Bay City	Sept. 17-19
Barry	Hastings	Oct. 1-4
Branch	Coldwater	Sept. 23-27
Calhoun	Marshall	Oct. 1-4
Charlivoix	E. Jordan	Sept. 11-13
Clare	Harrison	Sept. 24-27
Clinton	St. Johns	Oct. 1-4
Eaton	Charlotte	Oct. 1-4
Genesee	Flint	Oct. 1-4
Gladwin	Gladwin	Sept. 23-27
Grand Traverse	Traverse City	Sept. 17-20
Hillsdale	Hillsdale	Oct. 1-4
Ingham	Mason	Sept. 25-27
Isabella	Mt. Pleasant	Sept. 25-28
Kalamazoo	Kalamazoo	Oct. 1-4
Kent	Grand Rapids	Sept. 23-27
La Peer	Lapeer	Sept. 30-Oct. 2
Lenawee	Adriance	Sept. 24-27
Macomb	Mt. Clemens	Oct. 2-4
Mason	Ludington	Sept. 17-20
Mecosta	Big Rapids	Sept. 17-19
Midland	Midland	Oct. 1-3
Montcalm	Stanton	Sept. 3-6
Muskegon	Muskegon	Sept. 18-20
Oakland	Pontiac	Oct. 1-4
Oceana	Hart	Oct. 1-4
Ogemaw	West Branch	Sept. 24-26
Otsego	Gaylord	Sept.25-26
Pipestone	Pipestone City	Sept. 17-19
Roscommon	Roscommon	Sept. 17-19
Saginaw	Saginaw	Sept. 23-27
Stearns	St. Cloud	Sept. 18-20
Washtenaw	Ann Arbor	Sept. 24-27
Wayne	Detroit	Sept. 17-27
Wexford	Cadillac	Oct. 1-3

MICHIGAN DISTRICT.

Ionla	Ionia	Sept. 17-20
Tuscola	Caro	Sept. 17-20

MINNESOTA.

Anoka	Anoka	Sept. 3-5
Brown	New Ulm	Sept. 20-22
Carver	Carver	Sept. 25
Fillmore	Preston	Sept. 17-20
Houston	Caledonia	Sept. 24-28
Lac-Qui-Parle	Madison	Sept. 19-21
Meeker	Litchfield	Sept. 18-20
Mower	Austin	Sept. 17-19
Nicollet	St. Peter	Sept. 19-21
Ramsey	Hamline	Sept. 6-14
Stevens	Morris	Sept. 27-28
Stearns	St. Cloud	Sept. 18-20
Todd	Long Prairie	Sept. 17-19
Waseca	Waseca	Sept. 26-28

MINNESOTA DISTRICT.

Blue Earth	Mankato	Aug. 28-31
Olmsted	Rochester	Sept. 2-7

MISSOURI.

Adair	Kirksville	Sept. 17-20
Audrain	Mexico	Aug. 6-10
Atchinson	Rockport	Sept. 17-20
Barton	Lamar	Oct. 2-5
Boone	Columbia	Aug. 20-24
Callaway	Fulton	Aug. 13-17
Carroll	Carrollton	Sept. 10-14
Cass	Belton	Sept. 5-7
Charlton	Keytesville	Oct. 1-5
Clark	Kahoka	Aug. 27-30
Dade	Lockwood	Oct. 8-11
Dallas	Buffalo	Sept. 25-28
Daviess	Jamesport	Sept. 4-7
Franklin	Washington	Sept. 5-7
Gasconade	Hermann	Aug. 30-31
Gentry	Albany	Sept. 10-13
Greene	Springfield	Sept. 2 7
Harrison	Ridgeway	Sept. 25-27
Henry	Clinton	Sept. 4-7
Holt	Maitland	Sept. 10
Jasper	Carthage	Sept. 24-28
Johnson	Holden	Aug. 27-30
Knox	Newark	Sept. 9-13
Lafayette	Higginsville	Aug. 27-31
Lawrence	Mt. Vernon	Aug. 19-23
Lincoln	Troy	Sept. 10-13
Livingston	Avalon	Sept. 24-27
Macon	La Plata	Sept. 12
Marion	Palmyra	Oct. 1-5
Mercer	Princeton	Sept.11-20
Moniteau	California	Sept. 17-20
Monroe	Paris	Aug. 27-Sept. 1
Montgomery	Mont'g. City	Sept. 3-7
Newton	Neosho	Oct.8-11
Nodaway	Maryville	Sept. 9-14
Pettis	Sedalia	Aug. 20-24
Pettis	Sedalia	Aug. 20-24
Polk	Bolivar	Sept. 10-14
Putnam	Unionville	Sept. 11-14
Oregon	Thomasville	Oct 1
Ralls	Hannibal	Sept. 24-27
Schuyler	Lancaster	Sept. 11-14
St. Charles	St. Charles	Sept. 10-12
St. Francois	Farmington	Sept. 10 13
St. Louis	Clayton	Sept. 10-13
Scotland	Memphis	Sept. 3-6
Shelby	Shelbina	Sept. 2
Sullivan	Milan	Sept. 4-7
Vernon	Nevada	Sept. 10-13

MISSOURI DISTRICT.

Caldwell	Hamilton	Aug. 27-30
Cape Girardeau	Cape Girardeau	Oct. 15-19
Grundy	Trenton	Sept. 10-13
Noble	Caldwell	Sept. 11-13
Ray	Lawson	Aug. 21 24

NEBRASKA.

Adams	Hastings	Sept. 4-7
Antelope	Neligh	Oct. 2-4
Boone	Albion	Sept. 18-20
Brown	Long Pine	Sept. 24-27
Buffalo	Kearney	Sept. 17-20
Burt	Tekamah	Sept. 25-27
Butler	David City	Oct. 1-4
Box Butte	Nonpareil	Oct. 3-5
Cass	Plattsmouth	Sept. 16-19
Cheyenne	Sidney	Sept. 18-20
Clay	Clay Center	Sept. 17-20
Colfax	Schuyler	Sept. 18-20
Custer	Broken Bow	Sept. 17-20
Dawson	Lexington	Sept. 24-27
Dodge	Fremont	Sept. 17-20
Douglas	Omaha	Sept. 2-6
Frontier	Stockville	Sept. 25-27
Fillmore	Geneva	Sept. 23-26
Franklin	Bloomington	Sept. 25-27
Furnas	Beaver City	Sept. 24-26
Gage	Beatrice	Sept. 1-4
Greeley	Greeley Center	Oct. 1-3
Hall	Grand Island	Sept. 24-27
Hamilton	Aurora	Sept. 17-20
Harlan	Orleans	Sept. 18-20
Hayes	Hayes Center	Sept. 25-27
Hitchcock	Culbertson	Oct. 1-4
Holt	O'Neill	Sept. 25-27
Jefferson	Fairbury	Sept. 17-20
Johnson	Tecumseh	Sept. 4-6
Kearney	Minden	Sept. 24-27
Lancaster	Lincoln	Sept. 6-13
Lincoln	No. Platte	Sept. 17-20
Madison	Madison	Sept. 18-20
Merrick	Central City	Sept. 24-26
Nance	Fullerton	Oct. 2-4
Nemaha	Auburn	Oct. 1-4
Nuckolls	Nelson	Sept. 17-19
McKolls	Nelson	Sept. 17-19
Otoe	Syracuse	Sept. 3-6
Perkins	Madrid	Sept. 17-20
Platte	Columbus	Sept. 25-27
Polk	Osceola	Sept. 24-27
Richardson	Falls City	Sept. 9-13
Rock	Bassett	Oct. 1-4
Sarpy	Papillion	Sept. 17-20
Saunders	Wahoo	Sept. 17-19
Seward	Seward	Sept. 26-29
Sheridan	Gordon	Oct. 2-4
Stanton	Stanton	Sept. 24 27
Thayer	Hebron	Sept. 24-27
Valley	Ord	Sept. 24-27
Webster	Red Cloud	Oct. 1-4
York	York	Sept. 3-6

NEW HAMPSHIRE.

Belknap	Tilton	Sept. 10-12
Cheshire	Keene	Sept. 25-27
Coos	Lancaster	Sept. 25-26
Grafton	Plymouth	Sept. 17-19
Merrimack	Pittsfield	Oct. 1-2

NEW JERSEY.

Atlantic	Egg Harbor City	Sept. 21 24
Burlington	Mt. Holly	Oct. 7-12
Cumberland	Bridgeton	Sept. 4-5
Cumberland	Vineland	Sept. 11-12
Hunterdon	Flemington	Sept. 24-26
Monmouth	Freehold	Sept. 24-27
Salem	Woodstown	Aug. 27-29
Somerset	Somerville	Oct. 8-10
Sussex	Newton	Sept. 10-13

NEW JERSEY DISTRICT.

Cumberland	Bridgeton	Sept. 4-5

NEW MEXICO.

Bernalillo	Albuquerque	Sept. 30-Oct. 4

NEVADA.

Lander	Austin	Sept. 18-21

NEW YORK.

Allegany	Angelica	Sept. 10-13
Allegany	Cuba	Aug. 20-23
Chenango	Sherburne	Sept. 24-27
Clinton	Plattsburgh	Sept. 10-13
Columbia	Chatham	Sept. 10-13
Columbia	Hudson	Sept. 17-20
Delaware	Delhi	Sept. 17-19
Dutchess	Poughkeepsie	Sept. 24-27
Dutchess	Pawling	Aug. 27-29
Erie	Buffalo	Sept. 3-13
Essex	Westport	Sept. 3-5
Fulton	Johnstown	Sept. 9-12
Genesee	Batavia	Sept. 19-21
Lewis	Lowville	Sept. 17-20
Livingston	Geneseo	Oct. 1-3
Monroe	Rochester	Sept. 23-26
Montgomery	Fonda	Sept. 3-6
Niagara	Lockport	Sept. 19-21
Ontario	Canandaigua	Oct. 1-3
Orange	Goshen	Sept. 24-27
Orleans	Albion	Sept. 19-21
Oswego	Oswego	Sept. 10-13
Otsego	Cooperstown	Sept. 23-25
Putnam	Carmel	Sept. 10-13
Queens	Mineola	Sept. 24-27
Rockland	Spring Valley	Oct. 1-4
Rockland	New City	Sept. 17-20
Schoharie	Cobleskill	Sept. 24-27
Schoharie	Schoharie	Sept. 17-19
Seneca	Waterloo	Sept. 24-26
Steuben	Bath	Sept. 17-20
St. Lawrence	Canton	Sept. 17-19
Suffolk	Huntington	Sept. 10-12
Suffolk	Riverhead	Oct. 1-3
Sullivan	Monticello	Sept. 3-5
Tiogs	Owego	Sept. 10-12
Tompkins	Ithaca	Sept. 10-13
Washington	Fort Edward	Sept. 9-13
Wayne	Lyons	Oct. 2-4
Westchester	White Plains	Sept. 23-28
Yates	Penn Yan	Sept. 24-26

NORTH CAROLINA.

Wake	Raleigh	Oct. 15-18

OHIO.

Adams	West Union	Sept. 24-27
Allen	Lima	Sept. 10-13
Anglaize	Wapakoneta	Oct. 1-4
Ashland	Ashland	Sept. 4-7
Ash abula	Jefferson	Sept. 24-27
Athens	Athens	Aug. 28-30
Belmont	St. Clairsville	Sept. 3-5
Brown	Georgetown	Oct. 1-4
Butler	Hamilton	Oct. 7-11
Champaign	Urbana	Aug. 20-23
Clark	Springfield	Aug. 27-30
Clermont	Owensville	Sept. 3-6
Clinton	Sabina	Aug. 19-23
Clinton	Wilmington	Sept. 10-13
Coshocton	Coshocton	Oct. 8-11
Crawford	Bucyrus	Sept. 24-27
Cuyahoga	Chagrin Falls	Sept. 3-6
Darke	Greenville	Aug. 26 30
Defiance	Defiance	Sept. 3-6
Delaware	Delaware	Aug. 27-30
Erie	Sandusky	Sept. 17-20
Fairfield	Lancaster	Oct. 8-12
Fayette	Washington C. H.	Aug. 27-30
Fulton	Ottokee	Sept. 24-27
Fulton	Wauseon	Sept. 3-6
Gallia	Gallipolis	Sept. 17-20
Geauga	Burton	Sept. 10-13
Greene	Xenia	Sept. 10-13
Greene	Jamestown	Aug. 14-16
Guernsey	Washington	Sept. 24 27
Hardin	Kenton	Sept. 10-13
Hamilton	Carthage	Aug. 20-24
Hancock	Findlay	Sept. 25-28
Hardin "Tri-County"	Ada	Aug. 20-23
Harrison	Cadiz	Oct. 1-3
Highland	Hillsboro	Aug. 6-9
Highland	Greenfield	July 30-Aug. 2
Hocking	Logan	Oct. 2-5
Holmes	Millersburg	Sept. 24-27
Huron	Norwalk	Sept. 10-13
Jefferson	Smithfield	Sept. 25-27
Knox	Mt. Vernon	Oct. 1-4
Lake	Painesville	Sept. 17-20
Lawrence	Ironton	Sept. 25-27
Licking	Newark	Oct. 1-4
Licking	Pataskala	Aug. 27-30
Logan	Bellefontaine	Oct. 1-4
Lorain	Elyria	Sept. 24-27
Mahoning	Youngstown	Sept. 2-6
Marion	Marion	Oct. 1-4
Medina	Medina Village	Sept. 10-12
Meigs	Rock Springs	Sept. 11-13
Miami	Troy	Sept. 30-Oct. 4
Mercer	Celina	Sept. 24-27
Monroe	Woodsfield	Sept. 3-5
Morgan	McConnellsville	Sept. 9-12
Morrow	Mt. Gilead	Oct. 1-4
Noble	Sarahsville	Sept. 25-27
Ottawa	Port Clinton	Sept. 26-28
Paulding	Paulding	Sept. 17-20
Perry	New Lexington	Sept. 11-13
Perry	Somerset	Sept. 15-17
Preble	Eaton	Sept. 2-6
Portage	Ravenna	Sept. 24 26
Putnam	Ottawa	Oct. 1-5
Richland	Mansfield	Aug. 27-30
Ross	Chillicothe	Aug. 13-16
Sandusky	Fremont	Oct. 1-4
Sandusky	Clyde	Sept. 24-27
Seneca	Fostoria	Aug. 27-30
Shelby	Sidney	Sept. 24-27
Starke	Canton	Sept. 23-27
Starke	Marlboro	Oct. 3-5
Summit	Akron	Oct. 1-4
Trumbull	Warren	Aug. 28-30
Trumbull	Hartford	Sept. 10-13
Tuscarawas	Canal Dover	Oct. 1-4
Union	Marysville	Sept. 24-27
Van Wert	Van Wert	Sept. 10-13
Washington	Cody	Sept. 31
Washington	Marietta	Sept. 18-20
Wayne	Wooster	Oct. 1-4
Wood	Bowling Green	Oct. 1-5
Wood	Tontogany	Sept. 24-25
Wyandotte	Upper Sandusky	Sept. 17-20

OHIO DISTRICT.

Scioto	Portsmouth	July 30-Aug. 2
Vinton	McArthur	Aug. 6-9

OREGON.

Baker	Baker City	Oct. 8-12

OREGON DISTRICT.

Coos	Arago	Sept. 9-13

PENNSYLVANIA.

Armstrong	Dayton	Sept. 24-27
Armstrong	Parkers Landing	Sept. 17-20
Beaver	Beaver	Sept. 24-27
Beaver	Hookstown	Aug. 21-23
Berks	Kutztown	Oct. 1-4
Berks	Reading	Sept. 17-20
Blair	Holidaysburg	Sept. 17-20
Bradford	East Towanda	Sept. 24-26
Bradford	Canton	Sept. 3 5
Bradford	Troy	Sept. 10-13
Bucks	Doylestown	Oct. 1-4
Butler	Butler	Sept. 10-13
Cambria	Carrolltown	Sept. 17-20
Carbon	Lehighton	Oct. 1 4
Chester	West Chester	Sept. 19-21
Chester	Oxford	Sept. 25-27
Chester	Phoenixville	Sept. 11-13
Clarion	Clarion	Sept. 24-27
Columbia	Bloomsburg	Oct. 9 12
Columbia	Berwick	Sept. 4-7
Columbia	Benton	Oct. 2-5
Crawford	Cochranton	Sept. 11-13
Crawford	Cambridgeboro	Sept. 24-27
Crawford	Conneautville	Sept.17-20
Cumberland	Carlisle	Oct. 8-11
Dauphin	Gratz	Sept. 24-27
Erie	Corry	Sept. 10-13
Erie	Wattsburg	Sept. 17-20
Erie	Edinboro	Sept. 10 13
Fayette	Uniontown	Oct. 1-4
Greene	Waynesburg	Sept. 24-26
Indiana	Indiana	Oct. 1-4
Jefferson	Punxsutawney	Sept. 17-20
Jefferson	Brookville	Sept. 10-13
Juniata	Port Royal	Sept. 17-20
Lackawanna	Scranton	Sept. 10-13
Lancaster	Lancaster	Sept. 9-13
Lawrence	Newcastle	Sept. 17-20
Lebanon	Lebanon	Sept. 3-6
Lehigh	Allentown	Sept. 23-27
Luzerne	Wyoming	Sept. 24-27
Luzerne	Dallas	Oct. 2 4
Lycoming	Hughesville	Sept. 25-28
McKean	Port Allegheny	Sept. 13-15
Mercer	Mercer	Sept. 9-11
Mercer	Stoneboro	Sept. 25-27
Monroe	Stroudsburg	Sept. 24-28
Montgomery	Pottstown	Sept. 24-27
Montour	Danville	Sept. 24-27
Montour	Washingtonville	Oct. 15-18
Northampton	Nazareth	Oct. 1-4
Northumberland	Milton	Oct. 1-4
Perry	Newport	Sept. 24-27
Potter	Condersport	Sept. 25-27
Schuylkill	Orwigsburg	Oct. 1-4
Schuylkill	Ringtown	Sept. 11-13
Susquehanna	Harford	Sept. 25-26
Susquehanna	Montrose	Sept. 18-19
Tioga	Wellsboro	Sept. 10 13
Warren	Warren	Sept. 10-13
Washington	Washington	Sept. 17-20
Washington	Burgettstown	Oct. 1-3
Wayne	Honesdale	Sept. 24-26
Westmoreland	Greensburgh	Oct. 8-11
Wyoming	Tunkhannock	Sept.18 20
York	Hanover	Sept. 3-6
York	York	Oct. 1-4

RHODE ISLAND.

Providence	Woonsocket	Sept. 10-12
Washington	W. King ston	Sept. 10-12

TENNESSEE.

Bedford	Shelbyville	Sept. 5-7
De Kalb	Alexandria	Sept. 26-28

TEXAS.

Taylor	Abilene	Oct. 2-3
Wise	Alvord	Oct. 1-5

VERMONT.

Addison	Middlebury	Sept. 9-11
Chittenden	Burlington	Sept. 17-19
Franklin	Sheldon	Sept. 4-6
Lamoille	Morrisville	Sept. 10-12
Rutland	Fair Haven	Sept. 24-27
Washington	Northfield	Sept. 10-13
Washington	Waitsfield	Sept. 3-4
Windham	Brattleboro	Oct. 2-3
Brown	De Pere	Sept. 3-6
Burnett	Grantsburg	Sept. 11-13
Clark	Neillsville	Sept. 21-26
Columbia	Portage	Sept. 10-12
Jackson	Black River Falls	Sept. 9-11
Jefferson	Jefferson	Sept. 10-13
Marquette	Westfield	Sept. 25-26
Monroe	Sparta	Sept. 10-12
Ozaukee	Saukville	Oct. 1-2
Pierce	Ellsworth	Sept. 25-27
Portage	Amherst	Sept. 24-26
Rutland	Rutland	Sept. 17-19
Sauk	Baraboo	Sept. 23-27
Sheboygan	S'boygan Falls	Sept.11-14
Trempealeau	Galesville	Sept. 25-27
Washington	West Bend	Sept. 25-27
Waushara	Wautoma	Sept. 18-20
Barron	Cumberland	Sept. 4-6
Columbia	Lodi	Sept. 25-27
Grant	Bloomington	Sept. 11-13
Outagmie	Seymour	Sept. 9-11
Portage	Stevens Point	Sept. 3-6
Trempealeau	Arcadia	Sept. 17-19
Windham	Newfane	Sept. 11-12
Windsor	Woodstock	Sept. 24-26

VIRGINIA.

Augusta	Staunton	Oct. 1-4
Fairfax	Grange Camp	Aug. 14-21
Fauquier	Warrenton	July 3-4
Lancaster	Kilmarnock	Nov. 6-8
Loundoun	Leesburg	Aug. 27-29
Northampton	CapeCharlesCity	Oct.8-11
Prince George	Prince George	July 4
Shenandoah	Woodstock	Oct. 1-4
Tazewell	Tazewell	Oct. 1-3
Washington	Abingdon	Sept. 25-27

VIRGINIA DISTRICT.

Prince Edward	Farmville	Oct. 15-17

WASHINGTON TERRITORY.

Columbia	Dayton	Oct. 8-11
Kittitas	Ellensburgh	Sept. 10-15
Lewis	Chehalis	Oct. 2-4
Walla Walla	Walla Walla	Sep.30-Oct.5

WEST VIRGINIA.

Harrison	Clarksburg	Sept. 3-6
Jackson	Jackson	Sept. 9-12
Jackson	Ravenswood	Aug. 20-23
Mason	Point Pleasant	Aug.27-30
Ritchie	Pennsboro	Sept. 17-19
Tyler	Middlebourne	Aug.28-30
Wetzel	New Martinsville	Sept.3-6

WISCONSIN.

Adams	Friendship	Sept. 17-19
Barron	Chetek	Sept. 11-13
Brown	Green Bay	Sept. 10-13
Buffalo	Mondovi	Sept. 18-20
Chippewa	Chip'wa Falls	Sept. 17-20
Dane	Madison	Sept. 23-27
Dodge	Beaver Dam	Oct. 1-4
Dover	Sturgeon Bay	Sept. 11-14
Dunn	Menomonee	Sept. 3-5
Fond du Lac	Fond du Lac	Sept. 10-11
Grant	Lancaster	Sept. 18-20
Green	Monroe	Sept. 11-12
Iowa	Dodgeville	Aug. 28-30
Jefferson	Jefferson	Sept. 10-13
Juneau	Manston	Sept. 24-26
Kewanee	Kewanee	Sept. 12-14
La Crosse	West Salem	Sept. 3-5
La Fayette	Darlington	Sept. 10-13
Langdale	Antigo	Sept. 24-26
Manitowoc	Manitowoc	Sept. 23-26
Marathon	Wausau	Sept. 26-28
Outagamie	Hortonville	Sept. 25-27
Pepin	Durand	Sept. 11-13
Racine	Racine	Sept. 3 6
Rock	Janesville	Sept. 10-13
Richland	Richland Center	Oct. 2-4
St. Croix	Hudson	Sept. 3-5
Trempealeau	Whitehall	Sept. 11-13
Vernon	Viroqua	Sept. 25-27
Walworth	Elkhorn	Sept. 24-27
Waukesha	Waukesha	Sept. 10-13
Wood	Parkesburgh	Sept. 3-6

WYOMING.

Johnson	Buffalo	Sept. 25-27

CANADA.

Brant	Brantford	Sept. 10-12
Brant	Paris	Oct. 1-2
Bruce	Paisley	Sept 24-26
Bruce	Walkerton	Oct. 1-4
Carleton	Ottawa	Sept. 9-14
Elgin	Rodney	Oct. 11-12
Elgin	St. Thomas	Sept. 24-27
Elgin	Ridgetown	Oct. 8-10
Essex	Essex Center	Oct. 7-2
Frontenac	Kingston	Aug. 29-Sept. 5
Gray	Walter's Falls	Sept. 26-27
Grey	Durham	Sept. 24-25
Haldimand	Cayuga	Oct. 1-2
Hamilton	Hamilton	Sept. 23-27
Hastings	Belleville	Sept. 25-28
Huron	Goderich	Sept. 17-19
Kent	Chatham	Sept. 17-20
Lanark	Almonte	Sept. 24-26
Lanark	Perth	Sept. 17-19
Lincoln	St. Catharine's	Sept.23-25
London	London	Sept. 9-14
Middlesex	Belmont	Oct. 2
Norfolk	Simcoe	Oct. 15-16
Ontario	Whitley	Sept. 24-26
Ontario	Cannington	Sept. 27-28
Ontario	Port Perry	Oct. 2-4
Oxville	Otterville	Oct. 4-5
Pell	Brampton	Oct 1-3
Perth	Stratford	Oct. 3-4

Peterboro	Peterboro	Sept. 24-27
Price Edward	Picton	Sept. 10-11
Renfrew	Renfrew	Sept. 17-18
Renfrew	Beachburg	Oct. 3-4
Sherbrooke	Sherbrooke	Sept. 3-5
Simcoe	Collingwood	Sept. 25-27
Victoria	Lindsay	Sept. 24-26
Waterloo	Wellesley	Sept. 24-25
Wellington	Fergus	Oct. 10-11
Wellington	Guelph	Sept. 25-27
York	Markham	Oct. 2-4
York	Danforth	Oct. 10
York	Woodbridge	Oct. 9-10
NOVA SCOTIA.		
Yarmouth	Yarmouth	Oct. 10-11
P. E. I.		
Queens	Charlottetown	Oct. 2-3

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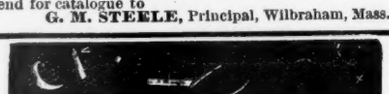

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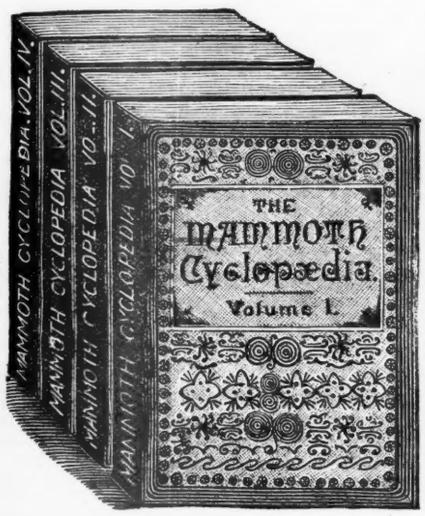

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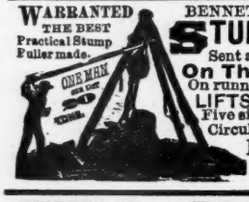

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